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THE TREATMENT OF BURNS AND OTHER INJURIES OF THE EYE.*

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In every large city, industrial accidents are constantly occurring which involve the impairment or loss of vision, or even of the eye itself. The fate of the wounded eye depends to a very great extent upon the treatment it receives; and the physician's responsibility is always intensified by the fact that the loss of one eye by accident may be followed by sympathetic ophthalmia and loss of its fellow, thus producing blindness.

While in other parts of the body a small scar is of little consequence, in the eye a nebula so small and thin as to be scarcely detected may cause very serious impairment of vision. Unless the presence of blood prevents, an ophthalmoscopic examination of the fundus should always be made, for it is only by this means that lesions of the lens vitreous and deeper structures can be detected.

It is not infrequent after railway accidents to have persons complain of impairment of vision or even complete loss of sight. These conditions are sometimes genuine and sometimes caused by the almost irresistible impulse to get compensation from a rich corporation. These latter cases heal spontaneously with the receipt of compensation. There is, however, a true traumatic amblyopia or blindness which for a long time shows no ophthalmoscopic changes, but which years afterward may show optic nerve degeneration accompanied by definite contraction of the visual field.

Nature's safeguards to the eye are many, a few being as follows: The protection of the boney orbit, the instinctive closing of the eyelids, the upward movement of the eyeball, the sensitiveness of the conjunctiva and the copious flow of tears—all help us in the guarding of our eyes. In spite of all these safeguards, however, a piece of flying metal, cold, hot or molten, often does enter the eye to its intense discomfort and often permanent injury. It is this class of cases that are of particular interest to railroad surgeons and to which I desire to call your attention in this brief paper.

In the first place it is very important that where an eye has been lost from any cause whatever, the patient should not be allowed to go back to work in any industrial plant where he comes in contact with machinery until he has educated himself to guage properly angles and distances; particularly the latter. This is usually the first thing complained of by a person who has recently been blinded in one eye. It takes considerable experience for one eye to judge distances, angles, etc., with the same accuracy as two—if indeed it ever does.

In my own experience I have found the greatest danger from ocular injuries lies not from the injury per se but from the possibility of infection which may follow. I have in mind the case of a woman who practically lost the sight of one eye through the very slight scratch from the finger nail of her baby who she was bathing. This injury was regarded as too trivial for medical attention; in fact, no attention was given it until about two days afterward, when the eye suddenly became intensely painful, and on presentation at my office she had a deep-seated corneal ulcer. This went on to gradual but very slow resolution; but left a widely desseminated nebula which left the sight almost useless. This eye could have been easily saved by the simplest antiseptic douches or proper medication at the time of the accident. The same system of treatment should be carried out after the removal of any foreign body from the cornea. In railroad practice these are usually particles of coke, coal, sand or metal. My sovereign remedy after the removal of foreign bodies is argyrol 20 per cent, the number of instillations depending on the condition of the eye at the time of the examination and the time elapsing since the accident. The medication being used more frequently when the injury is over twelve hours old. In these cases infection has usually started and vigorous treat-

*Read before the fourth annual meeting of The Florida Railway Surgeons' Association, held at Jacksonville, May 14, 1923.

ment is necessary to abort it. In eyes which are particularly painful and where blepharospasm interferes with the examination, a cocain suspension (1 to 2 per cent) in oil is very useful in relieving the pain. In deeply penetrating wounds of the eyeball in which it is necessary to incise, use the electro-magnet, etc. I will not touch upon as these will probably be handled by Dr. W. H. Adams, who is reading a paper along these same lines.

Wounds of the conjunctiva usually heal rapidly and not as a rule require a suture, but where the margin of the eyelid is involved a suture is very necessary, because if the margin of the lid is not accurately approximated the lashes are likely to turn in or out, and in either case a chronic inflammation of the conjunctiva and possibly the cornea will result.

Of all injuries to the conjunctiva the most disastrous in its results is a burn; especially one due to any chemical irritant such as the strong alkalies (lime) or the acids. In all cases of this kind the prognosis must be very guarded as frequently the action of the chemical extends far beyond the point of its initial application. I have seen a burn from lime that at first caused only a slight haziness of the cornea, which at the end of a week had caused its almost complete destruction. In the case of scalds or burns from molten metal the general symptoms are the same and the severity of the injury depends on the nature of the irritant and the length of time it has been in contact with the eye. Following a burn from whatever cause the pain is intense and the inflammatory reaction is rapid and violent. The eyelids are usually involved and soon become so swollen the interior is inspected with the greatest difficulty. The cornea usually becomes hazy over the greater part of its surface, but it takes from twenty-four to forty-eight hours for burned surfaces to become clearly mapped out. The burned surface soon becomes a well-defined slough and starts to separate and come away. From this point healing usually goes on uninterruptedly. In the more penetrating cases, however, the cornea suppurates deeply, perforates, and panophthalmia and complete loss of the eye ensue.

Strange as it may seem, molten metal, which one would naturally suppose would immediately be fatal to the eye, sometimes through the very intensity of its heat produces a comparatively slight injury. The explanation of this, as given by the physicist, is that the intense heat of the molten metal produces what is known as the spheroidal state in the moisture of the eye, and the spheroids of moisture acting as a non-conducting layer protect the eye from injury. I recently saw an interesting case of this kind. A man was brought in from one of the railroad shops who had his face liberally sprinkled from an explosion of molten Babbitt metal. A small amount of the metal entered both eyes before he could close them and after closing them the interlaced lashes caught more of the metal, which of course immediately hardened. Thus he was led to my office with both of his eyes tightly soldered together, being unable to open his eyes, he could not see, and thinking he was blind he was in a very depressed mental state when brought in. It was necessary to cut all the lashes of both eyes with fine pointed scissors before he could open them. When he did so the injuries to the eyes proper were found to be negligible. The most distressing sequeke of burns are the dense adhesions which form between the eyelid and the eyeball. These are but little amenable to treatment. The healing process after burns is slow. The vitality of the tissues is much lowered and the lids may become inverted or everted according to the nature of the burn. These contractures usually result in great facial disfigurement.

Burns of the globe are treated in the same general way as acute suppurative inflammations. The chemical burns must, of course, be especially treated. For instance, the alkalies such as quicklime should be treated with mild acid solutions, while after an acid burn alkalies are of course preferable. A mild solution of acetic acid (vinegar) is usually available for the first and normal salt for the latter.

The best thing to do in either case is to wash copiously with any bland solution until all possible particles are removed before proceeding with any other treatment. After all cases in which there is severe pain a 2 per cent solution of cocain in castor oil, or a 5 per cent suspension of chloretone in oil should be used together with ice compresses over the closed lids. Saline purgatives seem to be of considerable aid and occasionally a hypodermic of morphine in the temple is indicated. After about two days, warm applications seem to be more grateful to the patient. When the sloughs have begun to separate, the instillation of argyrol 20 per cent or silver nitrate 2 per cent are found to be very beneficial.

Iritic symptoms are, of course, combatted with atropine. During the cicatricial stage it is some times of considerable benefit to break the adhesions with a probe and keep the raw surfaces separated and lubricated with vaseline. In severe cases, however, adhesions or symblepharon, as it is called, will be formed in spite of anything that can be done.

When reduced to its final analysis the treatment of burns and nearly all other injuries of the eye reduces itself to the two basic principles of surgery, i.e., asepsis and antisepsis. The eye should be first cocainized (2 to 4 per cent) if necessary, then the neutral douche, then the antiseptics (usually the silver or of late the mercurochrome preparations) instilled until healing is complete. Do not use your silver solutions too weak. The albuminates of silver cause no more irritation in the strong than in the weak solutions and the efficiency is tremendously increased with the increased strength. Argyrol 20 to 25 per cent is my routine where there seems to be much infection. I hope these few remarks will be of some use to you in your railroad work. This is my only excuse for presenting to you a subject apparently so hackneyed; but one which, to the railroad surgeon, is frequently a cause of great anxiety and to the railroad one of great financial vexation.

MAJOR EYE INJURIES.*

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Three years ago I had the pleasure of reading a paper before this body, on "Minor Eye Injuries." At that time I stressed the fact that *any* injury to the eye, however minor it might appear to be at first, might develop into a very serious and dangerous one. I may state in passing that the only eye I have had to enucleate, on account of an injury, in several years, was one that at first seemed to have only a trivial injury, namely a foreign body in the cornea. By some means the site of the injury became infected, and a rapidly spreading pneumococcic ulcer developed and, in spite of the most energetic treatment, completely destroyed the entire cornea down to Decemet's membrane, necessitating an enucleation of the eye.

I shall briefly allude to only two or three of the most important major injuries that we are frequently called upon to care for in our particular line as railway surgeons, and first I shall take up intraocular foreign bodies. These may be divided into magnetic and nonmagnetic, and may vary in size from the smallest particle of metal to quite a large piece of metallic or other substance. The small particles may not always manifest their presence by typical symptoms, and, indeed, one is often at a loss to know definitely whether he is dealing with an intraocular foreign body or not. The wound of entrance, especially if through the conjunctiva, may be entirely closed and invisible. Unless a traumatism of the lens has been produced, there may be, at first, no diagnostic symptoms whatever; however, as a rule, there will be some loss of tension, and what is more important, a lessening of visual acuity. If the foreign body is magnetic, a magnet will demonstrate its presence, either by drawing the foreign body into view, or by the patient complaining of pain when the magnet is applied. An X-ray examination will show its presence, unless it is exceedingly small. After it is definitely learned that we are dealing with an intraocular foreign body, of whatever nature, there is one clear indication, and that is to remove it at the earliest possible moment.

If the foreign body is magnetic, this can be accomplished by a suitable magnet, either a so-called "Giant" magnet, or a less powerful one, with small tips, which can be approximated to the wound of entry, or introduced into the eye, if necessary.

The foreign body can be drawn through the anterior chamber and removed through an incision of the cornea, or removed by an incision through the sclera, posterior to the ciliary body between the insertions of the recti muscles. The relative merits of these two routes are very much in dispute. My own preference is by the anterior, if possible, which, unfortunately, is not always the case, as it can be removed through the anterior chamber under local anesthesia, whereas the posterior route calls for a general anesthetic.

Given a magnetic foreign body, and the proper magnet, one can practically always remove the foreign body from the eye, but not always without seriously impairing its visual capacity. If the foreign body is nonmagnetic, we have a much more difficult problem to deal with, as the vitreous is generally cloudy, and the foreign body

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not easy to locate and extract with forceps, and the vision is practically always lost, and, in most instances, an enucleation is indicated, either as a result of panophthalmitis or severe iridocyclitis endangering the other eye through sympathetic ophthalmitis.

The next class of cases that I shall refer to are penetrating wounds of the globe, either scleral or corneal, or wounds involving both the sclera and cornea. These may be incised, lacerated or contused wounds. They are dangerous in proportion to their extent and location, and whether or not they are infected. They are especially dangerous when in proximity to, or involving the ciliary region, both to the wounded and sound eye. They require a long time to heal and cause the eye surgeon more anxiety than any other class of eye injuries. Of course the simplest, shortest and easiest way to dispose of these cases would be to do an enucleation at once, but no conscientious eye surgeon wishes to enucleate an eye if he can possibly save it, and nearly all of these cases can be saved if treated judicially and heroically. The first thing indicated is to disinfect the wound as thoroughly as possible, then to replace, or excise, any part of the iris or ciliary body that may be protruding from the wound. If the edges of the wound are widely gaping and uncovered by conjunctiva, a scleral stitch may be necessary. The placing of a scleral stitch in this class of wound is not such an easy matter as one might think it is. Unless you are extremely careful, you will cause the loss of considerable vitreous, and may entirely ruin an eye, which could otherwise be saved. I use the scleral stitch very rarely, and depend largely on conjunctival flaps, sliding ones, if necessary, to approximate the edges of the wound and hold it in position. I always give a large subconjunctival injection of cyanide of mercury, 1/3000 in these cases, and I believe that I have thereby saved many eyes that would otherwise have been lost.

Parenteral injections of 5 c.c. of whole milk, boiled five minutes, repeated at forty-eight-hour intervals, for three times, will also help to save many eyes, not only in this class of cases, but in all inflammations of the cornea, or internal structure of the eye.

The third and last class of cases to which I shall refer are burns, and as this class of cases has been fully dealt with by my colleague, Dr. Manning, I shall only call your attention to one fact. In this class of cases, although they may apparently heal very promptly, they are quite prone to be followed by very stubborn ulcers of the cornea.

In closing I will say that in all cases of severe injury to the eye, atropine should be used first, last and all the time, except in some cases of wounds in the periphery of the cornea, where we can use for the first twenty-four hours, eserine or pilocarpin, to draw the iris from the wound, and thus prevent a relapse, or relieve one, if present.

Gentlemen, I need not tell you that in all injuries of the eye, both major and minor, strict asepsis and antisepsis, as far as practical, in all cases is absolutely necessary. Subconjunctival injections, parenteral injections of milk, or subcutaneous injections of diphtheria serum, dionin, aspirin, mercury and iodides will enable us to save the globe, at least, of most injured eyes, even if useful vision is not always preserved. A retained globe, if not too unsightly, is, in the patient's estimation, far preferable to an enucleation.

This paper, necessarily, could deal only in a cursory manner with this subject, and I trust that any points that I have not sufficiently stressed, or which are not entirely clear, will be brought out in the discussion, which I trust will be thorough.

NASAL HEADACHES WITH CASE HISTORIES.*

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Headache is the most common and troublesome symptom which practitioners are called to relieve. Sinus infection and malformations of the internal nasal structures rank next to the eyes as the cause of headaches. It must not be overlooked that systemic diseases may cause this symptom. Since aspirin has become a household remedy for pain the patient as well as physician is apt to neglect to look for the cause of such distress, thereby neglecting to rid the body of a focus of infection if such be the cause until other foci are established or that its toxins have produced permanent damage.

Sinus infection is most often primary, but may be secondary from teeth, tonsils, etc. It is frequently a complication of some respiratory

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disease, the most common being influenza. Poorly ventilated sinuses from various malformations are predisposed to infection and passive congestion. An infected sinus may be suppurative or nonsuppurative, depending on the virulence of the infective bacteria and the resistance of the mucous membrane attacked. A nonsuppurative inflammation often follows an acute purulent infection, especially of the sphenoid sinus. This alone accounts for a good many of the obscure neuralgias and optic atrophies. The sphenoid sinus is in close contact with the following nerves:

First—The optic nerve is placed in its upper and inner wall.

Second — The Vidian nerve is in the Vidian canal in the floor of the sphenoid sinus.

Third — Maxillary nerve emerges from the foramen rotundum at the lower lateral anterior part of the body of the sphenoid.

Fourth—Exceptionally we find the sphenoid in close contact with the Meckle's ganglion, semilunar ganglion, abducent nerve, motor oculi and the mandibular nerve. The posterior ethmoid cells are often found in close contact with the canal of the optic nerve.

It has been shown by Sluder and other investigators that by means of the Holmes nasopharyngoscope nonsuppurative inflammations may involve only certain areas of the sphenoid cavity, thereby accounting for the nerve affected; this in turn gives certain neuralgias and headaches. Sluder found by experimenting with the faradic current attached to the needle, if placed on certain nerves, the following neuralgias were produced:

First—Vidian nerve. Vidian neuralgia, pain in ear, mastoid, occiput, neck, shoulder blade, shoulder, arm, forearm, and hand.

Second—Maxillary nerve. Maxillary neuralgia, pain around eye, teeth, and temple.

Third—Meckle's ganglia. Meckle's ganglion neuralgia (nasal ganglion), pain begins at root of nose, in and about the eye, the upper jaw and teeth, and extending backward to temple, ear, emphasized at the tip (5 c.m. back of mastoid tip), occiput and neck, and often extending to shoulder, arm and to fingers.

Dr. Leon E. White, of Boston, recently published thirty-three cases of involvement of the optic nerve from accessory nasal sinus infection. The report shows that chronic infection of a low-grade nonsuppurative character will produce equally as great harm to nerve tissue as the suppurative type. He emphasized the mode of infection in his cases was by continuity.

A suppurative or nonsuppurative inflammation of a sinus may affect a nerve as follows:

First—By direct extension by continuity of the inflammation or the toxin.

Second—By toxemia, from focal infection by the way of the blood stream or lymphatics.

Third—By bacteriemia from focal infection by way of blood stream and lymphatics.

Fourth—By pressure on a nerve in a bony canal from periostitis.

Fifth—By lessening the diameter of a canal by increasing the bone structure.

The natural opening of the sphenoid sinus is in the anterior wall midway of the roof and floor. Thus poor drainage is the most probable cause why the maxillary, and Vidian nerves are more often affected than the optic nerve.

The other great factor concerning causes of headaches is malformation of the parts in the nasal cavities. This has special reference to the nasal septum, the middle and superior turbinates, and the uncinate process. These structures directly determine the size and shape of each nasal passage, the drainage and the aeration of the sinuses, and influence the health of the nasal mucosa. The soft and hard tissues alike take part in this affection. Malformations are most often acquired as from external injuries, obstructive nasal breathing from adenoids and enlarged tonsils, nondevelopment of the upper jaw, and from recurrent attacks of rhinitis.

Malformation may assume the hypertrophic or the atrophic type and both are as a rule present in the same nose. Hypertrophy is most often the precedent of atrophy. The change begins in the mucous membrane and extends to the cartilage and bone. The transition is effected in the bone by the activity of the osteoblast or bone-deposing cells and the osteoclast or bone-absorbing cells. In the fetus and the newborn the sinuses are very minute and some are only dents in the tissues. But as the bones of the face enlarge for the attachment of muscles and the neck thickens, the osteoblast and osteoclast cells are stimulated to fill in the space; by this means the sinuses are formed.

By recurrent attacks of rhinitis a false stimulation is made to the structure cells and abnormalities are produced which alter the nasal passages and often obstruct the outlets of the sinuses. The

nasal passages may become larger or smaller; in the first instance the air is not properly warmed, moistened, and filtered, and in the second instance a sufficient amount of air is not taken for oxygenation. The hypertrophy may obstruct both nares by a thickened nasal septum and spurs; may obstruct the frontal sinus opening or anterior ethmoid openings by a thickened uncinate process and enlarged bulla ethmoidallis. Or it may obstruct the openings of the posterior ethmoid and sphenoid sinuses by a thickened nasal septum posterior or by an enlargement of the posterior end of the middle and superior turbinates. The latter may only be discoverable at operation. Sluder believes that the overgrowth of bony tissue of nerve canals causes by pressure many obscure optic atrophies and neuralgias of the Vidian and maxillary nerves.

As to the diagnosis of nasal headaches a careful history should be taken; neurosis and systemic diseases ruled out. The nasal cavities should be examined for pus, condition of mucous membrane, deformities, etc. The nasal mucosa has been termed by Dr. Shea, of Memphis, the show window of the sinuses. No sinus should be excluded by transillumination or X-ray from being infected without a careful inspection of the nasal cavity. Tenderness to pressure on upper inner angle of orbit is termed Ewing's sign. This is the chief point of diagnosis for vacuum frontal headaches. The tender spot is the thinnest wall of the frontal sinus and it is the place of attachment of the pulley of the superior oblique muscle. This headache comes on after reading or after any close work.

The treatment is medical or surgical, or medical and surgical. Experiments on the cadaver have shown that medicine injected in the region between the middle and superior turbinates was usually found in the sphenoid sinus. Cleansing agents, astringents, counter-irritants, and anesthetics are used as indicated. Surgery is resorted to in bony obstruction to favor drainage and proper aeration of the sinuses. Surgery should be so done as to preserve as near as possible the normal secretory, radiation of heat, and filtering of the air functions of the nose. The technique as outlined by Dr. Pratt, of Minneapolis, probably answers this requirement better than the operations laid down in the textbooks.

It is the purpose of this paper to bring out the following:

First — To explain the causes of headaches from nasal origin.

Second—To denote the two factors of etiology, namely, sinusitis and malformation.

Third—To emphasize that a sinus infection may be either suppurative or nonsuppurative.

Fourth — That malformations may produce headaches by causing a vacuum in a sinus or by pressure on a nerve.

Fifth—The danger of not correcting recurrent attacks of rhinitis.

Sixth—Transillumination and X-ray are only confirmatory to diagnosis.

Seventh—The importance of nasal inspection for diagnosis of headaches and neuralgias.

Case 1.—Male, age 30, barber by occupation, suffers with headaches over brow and temples, usually begin on left side. Has had attacks off and on for two years, but they have been more severe for past three months. Headache begins a short time after working at his trade or reading. Has not been able to work for three months. Ewing's sign present on left side. Inspection shows the uncinate process thickened. Middle turbinate lies very close to outer wall. Probe fails to pass freely into frontal sinus. Wassermann negative. Diagnosis: Vacuum frontal headache. Treatment: Cocainized anterior nares, fractured and raised middle turbinate from outer wall and passed probe into frontal sinus. Results, cured.

Case 2.—Female, age 28, washerwoman, since attack of influenza two years ago has had headache almost constant, not able to work for two months. Pain over mastoid, occiput and neck. Wassermann negative. Inspection anterior nares negative. Diagnosis: Vidian neuralgia. Treatment: Prescription of menthol and camphor in liquid petrolatum, with directions to instil ten drops in each nasal passage three times per day while lying down face up, head hanging over edge of bed. Patient returned two years later stating that she had been relieved of headaches since beginning treatment. It is very probable that she had a chronic nonsuppurative inflammation in the sphenoid over the Vidian nerve.

Case 3.—Age, 32, female, housewife, headaches began two years ago following a severe head-cold or influenza. Since that time she takes colds frequently. During the attacks of each coryza the pain is very severe over brow, temples mastoid, 5 c.m. posterior of mastoid tip, over occiput, neck, and often in shoulder, arm, and hand. As the head-cold improves she feels a

dripping of muco-pus in throat, this is accompanied with a lessening of pain. For the past year the pain between attacks have been continuous but less severe. For the past three months headaches have been so severe as to keep her in bed most of the time. Wassermann negative. Nose examination negative. Pharynx and epipharynx show an atrophic catarrhal condition. X-ray shows left sphenoid sinus probably pathological. Medication as in case 2 for two weeks with no results. Operation under local anesthesia showed a subacute sphenoiditis with a small amount of pus present. The opening of the sphenoid was blocked by the hypertrophied end of the middle turbinate and granulations. The sinus cavity contained polypoid tissue and pus. The posterior end of middle turbinate was removed, anterior wall of sinus removed and cavity lightly curetted. At the end of two days pain was greatly relieved, but was not entirely so. At the end of fifteen days the sinus was mopped with phenol in glycerin. She returned in three months saying that she had been entirely relieved since the medical application. Diagnosis: Maxillary and Vidian neuralgia. At the onset of attacks she had a purulent sphenoiditis followed by a low-grade infection or nonpurulent.

Case 4.—Female, age 43, house cleaner, has had headaches and head-colds for past year. About three months ago the complaint became so bad as to unfit her for work. She also complains of not being able to breathe through nose. Wassermann negative. Ewing's sign present. Muco-pus exuding from anterior nares, septum thickened to such an extent as to occlude both nares. Diagnosis: Hyperplasia of septum with vacuum frontal headache. Treatment: Submucous resection. Results, cured.

Case 5.—Male, age 23, laborer. Has had headaches, chronic head-colds and difficult nasal breathing since ten years old. Polypi were removed two years ago with relief of complaint. Three months ago he contracted severe rhinitis, with pain over left cheek, brow and temples. The headaches have been so great as to prevent him from working. Some difficulty in breathing on left side. X-ray suggested no pathology in sinuses but polypi in posterior nares. Wassermann negative. Examination of nares shows pus under anterior end of middle turbinate on left side. Irrigation of left antrum brought away large amount of pus. Two polypi were removed from left nares. Radical operation on left antrum with nerve-blocking anesthesia. Results, cured. Diagnosis: Maxillary neuralgia from suppurative infected antrum.

MECKLE'S GANGLION AND GLAUCOMA.*

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Prof. Felix Lagrange, of the National Academy of Medicine, Paris, has recently issued a book, "Du Glaucoma et de L'Hypotonie," which may be considered the last word on this disease. Lagrange takes the position that in glaucoma "there is a neuropathy producing a hypersecretion, as first postulated by Donders, leading to increased tension, when, as shown by Knies, the anterior chamber angle becomes blocked."

So far all are agreed, glaucoma is a hypertension. This hypertension is initiated by a neuropathy. But it results in hypertension only when the anterior chamber angle becomes blocked. The two necessary conditions of glaucoma then are *increased secretion and poor drainage.*

The increased secretion is due to a neuropathy, but no one has as yet designated the particular nerve that has gone awry. If we could place a finger on that nerve it would be a distinct advancement. That is the object of this paper.

Morax and Girard, studying the intraocular tension in animals, observed that if the needle of the canula came in contact with the iris, the tension was so disturbed that the animal had to be abandoned and a fresh one taken. Such was the effect on tension of a stimulus applied to the iris.

Magitot later measured the disturbance of tension caused by local stimulation of the iris. Using cats for this purpose, he found that the normal tension is 30 m.m. of mercury, but in three minutes after the needle of the canula touched the iris the tension mounted up to 42 m.m., and in seven minutes reached a maximum of 56 m.m. of mercury.

Turning now from the eye to the nose, Sluder, of St. Louis, is the star witness. He reports that in a particular case after cocainizing the nasal ganglion on the right side, the eye lid drooped and the pupil contracted to about half the size of its fellow. This causes him to remark:

"The case presents this interesting phenome

*Read before the Fiftieth Annual Meeting of The Florida Medical Association, held at Jacksonville, May 15, 16, 1923.

non: that through the nasal ganglion in this case must pass a large part of the sympathetic supply which goes for the elevation of the eye lid and to the pupil."

To me the interesting point is the proof that a nerve impulse from the nasal ganglion has a direct path to the pupil. Remembering the anatomy, it will be seen that such an impulse must traverse the structure that secretes the aqueous, namely, the ciliary body. Here then we have Meckle's ganglion connected with two secreting structures about the eye—the one external, the lachrymal gland; and the other internal, the ciliary body. Stimulation of the ganglion excites excessive secretion of the lachrymal gland, and anatomically and physiologically we have every reason to expect a similar effect upon the ciliary body.

I now want to introduce a bit of therapeutic evidence. Mrs. A., 33 years old, has eyes with anatomically poor drainage. The irises are cupped forward like saucer bottoms. Since this is a defect of anatomy, it is to be assumed that it has existed from birth. Yet she gives no history of eye trouble till three years ago. During the first thirty years of her life she was a potential case of glaucoma, only waiting for the neuropathology that would stimulate hypersecretion. Three years ago the thing happened. Both eyes were involved in a glaucomatous attack, from which she has suffered ever since. The tension is always high, but varies from day to day, some days being almost normal. It is always aggravated by a "cold in the head."

At such times both pain and tension can be relieved by either of two procedures: either by cocainization of the nasal ganglion or by the installation of ½ per cent solution of eserine into the eyes. Cocaine is more prompt than esserine, and relieves first the pain, and then the tension. Eserine on the other hand relieves the two slowly but simultaneously. She has a hyperplastic rhinitis in which both sides are involved.

As I interpret these phenomena the cocaine relieves the pain by blocking the sympathetic nerve. At the same time it blocks off the pathological impulse that is causing the excess secretion. That done, the drainage, though poor, gradually gains till normal tension is reached. The eserine on the other hand improves drainage by contracting the pupil. With improved drainage the tension gradually eases down and with it the pain.

Mrs. M., 28 years old, has eyes with normally good drainage, but she has a pathological nose, as will be seen later. The eyes are described as having been "poor" for years, but no diagnosis of glaucoma has ever been made. Recently she reported for help for her poor vision. Since the tension of the eyes seemed normal, atropine was used for refraction. Forty-eight hours later an acute high tension developed in both eyes accompanied by severe pain. Though bilateral, it was more pronounced on the left side.

A nasal examination at this time disclosed a supersensitive area in the vicinity of Meckle's ganglion on the left. Cocainization of this area promptly relieved both the pain and high tension in both eyes.

In another forty-eight hours the condition returned. This time ½ per cent solution of eserine installed into the eyes contracted the pupils and relieved the tension and pain, but less promptly than the cocaine had. The patient was now given ¼ per cent eserine to be installed into the eyes every four hours for ten days. This contracted the pupils and provided for drainage till the effect of the atropine passed away.

Here was evidently a case in which the Meckle's involvement, while probably always keeping the secretion into the eye excessively active, still had not increased the tension to pathological proportions till the dilatation of the pupil interfered with the drainage.

Mrs. B. is a still more instructive case, and being in my own family—my apologies—it has been observed at all hours day and night. Both eyes have good drainage, and there is no demonstrable sensitiveness in Meckle's area on either side. But the spaces between the middle turbinates and lateral walls, particularly the right one, are rather restricted. So that with a little turgescence the maxillary ostia becomes completely occluded. This has happened at times in the case of both maxillary sinuses, but most frequently the right. She had a severe attack of "flu" in February and since then these recurrences, more or less continuous at first, have gradually become somewhat intermittent, though they have not altogether abated even at the present writing, May 10th. A typical instance may be described as follows: She first notices a feeling of weakness, not referable to any particular part of the body. More than once she has failed utterly to suspect the nose. When this is continued for a while, a frontal headache develops, more exces-

sive on the right side, and later pain behind the ear and in the occipital region. At this time she is highly keyed up. At this time the eyes begin to have a feeling of tightness, and pain, more emphatic in the right. And then in the right cheek an area sensitive to pressure on the bone developes. It is this sensitive point that definitely fixes the locus of the trouble just as Ewing's signs fixes it in the case of frontal sinus. She at last develops what she describes as a jacket of pain involving the entire chest from the diaphragm up. This is a typical onset and sequence of symptoms reaching intensive proportions.

In all this the most outstanding symptom is the condition of the eyes. The tension as estimated by palpation is very high. The pain likewise, which is aggravated even by the shutting and opening of them. The right more severe than the left. At such times I have not been able to detect any dilatation or inequality of the pupils, but the greenish hue that is so characteristic of glaucoma is very evident. Indeed, if this condition of the eyes persist, one would be compelled to make a diagnosis of glaucoma. (At the present time, of course, the condition is generally relieved before it goes too far, but before the trick was learned it often reached these proportions.)

Now let a styptic on a small pledge of cotton be applied. At first the applicator cannot be passed behind the middle turbinate on account of the turgescence. But as the astringent begins to take effect, the space opens up and it can then be thoroughly mopped out. This done, a faint sound is heard like air breaking through one bubble at a time every three or four seconds, until four or five or six or even more have been heard. These sounds can be heard quite plainly by both the patient and the physician a yard or more away. She has heard it so often that she always listens for the "creaking," as she calls it. When it begins to creak she knows that relief is close by.

It might be pointed out just here that it is immaterial what astringent is used. I have used adrenalin, alum, silver nitrate, and cocaine all with equally good results. At the present time I usually use ½ per cent solution of novocaine with 1/8000 adrenalin. This shrinks the tissues promptly and is not painful.

After the creaking takes place the pain begins to subside: first the jacket and then the headache, and then the maxillary sensitiveness to pressure, and she can, for the first time, relax.

The pain and tension of the eyes and the sensitiveness to palpation through the lids are the last to go. After this the patient feels quite well.

The interpretation of these phenomena are self-evident. Whatever it is that causes the turgescense, it starts it all. The turgescence blocks up mechanically the maxillary ostium. With the ostium closed, the contained air is soon absorbed, so that a partial vacuum is produced in the maxillary sinus. This vacuum in some way excites irritation of the nasal ganglion. This in turn stirs up headaches, both frontal and occipital, and the pain in the chest. It also excites the lachrymal gland to excess secretion as shown by copious watering of the eyes, and (presumably) excites the ciliary body to excess secretion, and at such a rate that the normal drainage of the eye, even though good, is inadequate, so that gradually the intraocular tension increases, and with it the pain and sensitiveness.

There is one feature in all this that I have no explanation for, and that is why both eyes are involved when the nasal ganglion on one side only is disturbed. I only know that it is so. It is true that the eye on the side of the offending nerve is generally the more involved, still its fellow rarely or never seems to entirely escape.

All in all, the evidence here presented, if not conclusive, would seem to point irresistably to an intimate connection between Meckle's ganglion and glaucoma, a fact which, if sustained, will make it a convenient point of attack for therapeutic purposes, and may indeed revolutionize our practice in the treatment of this dread disease.

Note.—No one seems to have suspected the connection between Meckle's ganglion and glaucoma. Reporting a case of an eye lost from glaucoma and which afterwards developed an acute condition, which was relieved by cocainization of Meckle's ganglion, Sluder remarks: "This case to me is exceedingly interesting as showing the power exerted over the eye from the nasal ganglion. Whether this be a trophic influence or whether it be the result of the control of pain is to me very difficult to decide. * * * It would appear every now and then that the influence is trophic. * * * Many times I have obtained most beneficial results for the eye condition where the ophthalmologist was having a hard time to control a bad iritis."

It is obvious from this that Sluder, who seems to have been closer to it than any one else, never suspected that he had put his finger on the fundamental cause of glaucoma. In the literature at my disposal I have not found it mentioned. Furthermore, at the last meeting of the Southern Medical Association, Dr. Joseph Heitger, of Louisville, read a paper under the title: "Some Observations on Eye Lesions of Nasal Origin." While Dr. Heitger discussed the subject extensively, and quoted freely from the literature, no mention was made of glaucoma. This could hardly have been overlooked if the connection had been made, and it certainly could not have been otherwise eliminated without mention from a paper under this title.

TREATMENT OF FRACTURES OF THE LOWER ONE-THIRD OF THE FEMUR.*

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There are no fractures of the femur so serious as those of the lower end, and none that require such a great amount of careful handling.

The information given by most textbooks is meager. Scudder, in his last book, says, "The Thomas splint is indicated or some modification." To the general practitioner who cannot get his patient to a hospital, this form of apparatus for all fractures of the lower end is impracticable, and if hospitalization can be accomplished I do not think it is indicated in all cases.

I am omitting the etiology and pathology because this you all know. Diagnosis is now readily made or confirmed with the X-ray.

In all cases of fracture about and into the knee joint, there occurs enormous swelling, and if this is extensive, we should place the limb in a comfortable position and wait a few days until the swelling subsides.

Under anæsthesia reduction of the fracture should be attempted. This is not easy in all cases.

In the *transverse supracondyloid* ones, the lower fragment is pulled backward by the combined action of the gastrocnemius, soleus, et plantaris muscles, and the upper fragment pulled upward by the rectus. Some authorities claim that this action of the muscles is negligible, but we have found that they exert a strong traction on the lower fragment enough at times to produce a severe pain from pressure on the sciatic, shut off the circulation on the popliteal vessels, and greatly interfere in the reduction. Upon a Hawley table these fractures can usually be easily reduced with extension and manipulation. If they will stay put, and you should prove this with the fluoroscope, then a plaster paris cast is applied, from waist to and including the foot, in an extended position.

If this transverse fracture be complicated with a T one the same treatment is indicated. If you cannot maintain your fragments in apposition, then you must use the Thomas splint with Steinman's pins, or the calipers to produce traction. The Steinman pin is placed through the lower end of the femur, the thigh swung in a Thomas splint with leg flexed (double inclined plane) and extension applied in the direct line of femur. This pull through the pin tilts the lower fragment up and with a little manipulation the fracture can be put in perfect alinement. Tilting too far forward of the lower fragment does not occur unless the pins or the calipers are placed too far forward. The pins or calipers can be used with local anæsthesia, but in difficult cases where the leg must be manipulated, general anæsthesia is needed.

If you cannot hold your bones in alinement by traction then it becomes necessary to operate. In simple fractures we expose by incision on outer side of leg, make strong traction (this is easily accomplished on Hawley table) and by the use of hooks or other bone instruments slip or pull or pry the fragments into place. If, when the extension is released, the fragments remain in apposition, close your wound and apply a plaster cast. If they do not remain in good position, bone plates are applied and cast put on.

Oblique fractures are very difficult to hold in position. Here, again, we make use of our Thomas splint, with calipers or Steinman's pins to make our extension. It has been my experience that good position is hard to maintain, and if any difficulty at all is experienced in keeping your fragments in place operate at once. The Parham-Martin bands are the best appliances to use, easy to apply and they certainly hold the fragments in position. Bone-plates, nails or pegs can be used. Sometimes it may be found necessary to remove a piece of the end of the shaft.

Fracture condyles are very rare. They are reduced by flexion and manipulation and put up in plaster.

In the treatment of open and infected fractures, sometimes with loss of bone, we are up against a difficult proposition. If the opening is small, sterile, and the fracture reduced, the wound should have sterile dressings, extension by calipers or Steinman's pins, and swung in a Thomas splint, bent to make a double inclined plane. If the fracture is comminuted or the opening large and dirty, the wound should be enlarged, cleaned, pieces of bone removed, bone put in proper position, Dakin's tubes inserted and thigh swung in Thomas splint with extension as in simple fracture.

In gun-shot wounds, infected, and with loss of bone it sometimes becomes necessary to fasten the ends of bone together, as you may often get union by plating, wiring, etc., if your wound is

*Read before the fourth annual meeting of The Florida Railway Surgeons' Association held at Jacksonville, May 14, 1923.

kept under continuous Dakin's treatment, properly instituted.

The after-treatment of these fractures is very important on account of their close proximity to and oftimes into the knee joint. Our plaster casts are removed at the end of six weeks, and the leg inspected; if everything is all right we put on another light cast and let our patient up with crutches, not bearing weight on his leg until the eighth week. Then the cast is removed and the patient allowed to gradually use his leg. During this time the fracture is fluoroscoped from time to time, and after the cast is removed, active and passive movements of the knee joint are commenced. Eighty-three per cent of all fractures of the shaft of the femur, including those of adult life and childhood, are solidly united in nine weeks.

The after-treatment of the fractures that are swung with traction by means of the calipers of Steinman's pins is beautifully described by Pearson and Drummond:

"Success in the management of all fractures, and especially in femur cases, depends on the amount of care bestowed on them. No method will give uniformally good results except by constant attention to the details of its management. No method allows the surgeon to dispense with close personal attention, which must be very frequent in the early stages. The nurse's part is of the utmost value, so is that of the masseuse, but unless the surgeon knows the difficulties of both * * * his ultimate results will be poor * * *.

"In the first place the surgeon should remember * * * the importance of delicacy of touch and movement. Rough handling during dressings is a crime. Bumping against beds is clumsiness excusable only in the untrained. The actual control of the fracture will entail a considerable amount of work on the part of the surgeon.

"By inspection, palpation, radiography, and measurement he will get complete information as to his success or otherwise in correcting disability or deformity.

"He will find that in many cases he has to make alterations in the positions into which the limb was originally put. In most cases he will have to make daily minor adjustments at first.

"The adjustments consist of increase or decrease of abduction or adduction, more or less flexion of joints, tightening of posterior slings, progressive use of pressure pads, attention to cord and pulley, etc.

"Above all, it is his special duty to carry out the daily movements of the knee joint.

"It is our practice," and I approve his practice, "to begin this on the earliest possible day after the injury, i. e., immediately the patient is fitted with his permanent splint, knee flexion attachment, and caliper extension * * *.

"Assuming that the case is a recent one, we begin by lowering the foot 1 or 2 inches a day until the heel reaches the bed, by which time the knee will have been flexed through, say, 40 degrees. This may take the knee a week. We then work upward 1 or 2 inches a day until the upper limit is reached, after which wide movements can be carried through every day * * *. These movements should not be delegated to others and must be done regularly and adequately. If the knee is left unmoved for a week at a time some mobility will be lost and will have to be regained gradually. Later, when traction calipers have been discarded and some union has occurred, the movement of the leg can be relegated to the patient * * *. Movements of the ankle and toes must be attended to also."

X-rays should be taken at necessary intervals to be sure of the progress made in the conduct of the case.

Inspection of the fractured limb should be made at least daily. Measurement should be made twice a week during the first few weeks and recorded (Pearson), the internal malleolus being reached through the bandage. Parts of the apparatus may need changing, and straps may require tightening or loosening. The heel and sacrum will require attention because of the constant pressure from lying in one position. Suspension of the limb will diminish danger of pressure.

Ordinarily, there will be little or no pain associated with the repair of the fracture. After about four weeks all apparatus should be removed and the limb thoroughly inspected, to detect, if possible, any uncorrected deformity, and to determine whether union is yet firm. In from four to six weeks repair in a healthy child or young adult should have advanced to the state of firm union. Ninety-seven per cent of fractures of the shaft of the femur in patients under ten years of age will be united in seven weeks (Paul). The apparatus should be finally removed. The thigh should be washed and thoroughly oiled. The patient should be permitted to lie in any position in bed without retentive apparatus for one week. The patient should not be allowed to

bear weight upon the unprotected thigh until after the ninth week. At the ninth week he should be allowed up and about with crutches, and a moderately high-soled shoe (2 inches) should be worn upon the foot of the uninjured thigh. He should bear no weight upon the injured leg. The seat of the fracture should be protected by coaptation splints and straps or a light spica plaster of paris bandage from the toes to above the waist. A Thomas splint, fitting into the sides of the sole of a shoe, makes an inexpensive and easily handled protective splint. This may be used in the fracture of the femur at whatever portion it is broken after union is firm. The support afforded by this splint enables the patient to move about early and protects the recent fracture from too early weight-bearing. The general health is thereby improved and lateral bending at the seat of fracture is prevented. At the end of twelve weeks all support may be discarded and the adult patient encouraged to gradually bear his weight upon the injured limb. Of course, fractures of the femur vary considerably in the time the patient is able to get about, but the foregoing routine is that of average uncomplicated cases.

SUMMARY.

1. *Simple fractures* that can be reduced and remain in position should be put up in plaster.

2. Simple fractures whose fragments will not remain in apposition and position should be operated, using plates, pegs, etc., and put up in plaster.

3. Open fractures should be swung, extension with Steinman's pins or calipers.

4. Open infected fractures should be opened, and Carrol-Dakin treatment, institute swung and extension by pins or calipers.

CARDIO-VASCULAR TROUBLES AND SOME SUGGESTIONS AS TO TREATMENT AND PREVENTION.*

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In undertaking to write on this subject, I wish to say in the outset that I am contributing largely the findings of other and more able observers. The etiology and pathology of cardio-vascular diseases is a deep scientific proposition, so I have chosen rather to speak of cardio-vascular troubles, covering, as this term does, that great symptom-complex known as Bright's disease and the more modern, though allied, proposition of hypertension, or high blood pressure.

Preventive medicine has scored great success in reducing the death rate of epidemic and so-called infectious diseases, but deaths from heart disease, with its kidney complication, is on the increase and, according to statistics in 1920, 124,000 persons died in this country in that year from these diseases. Insurance statistics go to show that diseases of the heart and kidneys and of the digestive tract show always a large proportion of the causes of death for which they are called on to pay. Beginning with the heart, we have enlargement of this organ, broken-down valves, aortic degeneration and a general arteriosclerosis of the arterial system. This condition leads on generally to apoplexy and paralysis and death; hypertension and heart failure generally noted.

When we couple this heart condition with nephritis, either acute or chronic, and the consequent insufficient elimination of the waste products from the blood stream, we have the starting, or at least a starting point for hypertension. Whatever forces and influences that go toward the increased work of the heart ultimately lead to dilatation of the heart and weakening of its normal function.

From the article by George Edmeston Fahr, in April 7th number of *The Journal of the American Medical Association*, I quote some interesting statistics. He says: "Having pointed out the high incidence of high blood pressure in chronic heart-muscle failure, it becomes necessary for me to show that it is the probable cause of heart failure (deaths). Allbutt, the best-informed student of hyperpiesis, remarks on the frequency with which these patients develop heart failure. Krehl, in his treatise on heart-muscle disease, attributes a certain amount of heart failure to high blood pressure. Romberg in his treatise on heart disease published in 1921, states that 35 per cent of all chronic heart-muscle disease is associated with arteriosclerotic kidneys, which is equivalent to saying that at least 35 per cent of chronic heart-muscle disease is associated with chronic hypertension. Forty-five per cent of 117 patients with nephrosclerosis who came to necropsy in his clinic, died of heart failure, 44 per cent died of apoplexy, and 11 per cent died of uremia.

"Pathology offers some very good indirect evidence that chronic heart-muscle failure is frequently associated with hypertension. Hecht, in

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analyzing the result of 4,000 necropsies, finds that if valvular disease and chronic glomerulonephritis are excluded, that 72 per cent of all hearts showing hypertrophy and dilation of the left ventricle are associated with arteriosclerotic kidneys. As arteriosclerotic kidney of this type is always associated with hypertension, it is clear that something like 70 per cent of all chronic heart-muscle disease must be associated with hypertension."

These are his significant conclusions:

First—Hypertension is the most constant and most important factor in causing chronic heart-muscle disease, often called chronic myocarditis.

Second—About 75 per cent of all cases of chronic heart-muscle diseases are associated with hypertension, or follow in its wake.

Third—Chronic or acute infections play a minor role in the production of heart-muscle disease. Acute infection is an adverse factor in chronically weakened hearts.

Fourth—Approximately 50,000 persons in the United States die of hypertension heart every year.

We see now that hypertension deaths are most generally associated with arteriosclerosis and consequent weakness and dilation of the heart.

We shall mention some of the most common causes of arteriosclerosis. Arnold Lorand, of Carlsbad, in his book on "Old Age Deferred," claims that the adrenal glands play a most important part. He goes on to say: "There can no longer be any doubt that these glands exercise a controlling influence on the heart and the whole circulatory system. They are in intimate relation with the principal nerves that regulate the heart: the sympathetic and the vagus. Thus, for instance, emotions that act on these nerves excite through them a hypersecretion of the adrenals and a contraction of the small blood vessels with a rise in the blood pressure. By the hyperactivity of these glands their secretion, in larger quantity than usual, is thrown out into the system, producing toxic effects which result in an atheromatous condition of the arteries.

"According to Professor Romberg, there is only high blood pressure in such cases of arteriosclerosis when there is a diseased condition of the kidneys. According to this leading authority on heart diseases, high blood pressure is one of the earliest symptoms of kidney complication in arteriosclerotic persons. We believe that the high blood pressure found in kidney diseases may be brought in to correlation with the previous statement, by the fact that in such conditions and especially in sclerosis of the kidneys, the adrenals, if examined, are found frequently to be hypertrophied, as was noted by other observers."

It is a singular fact that all those agencies that produce a hypersecretion of the adrenals are the same as are known to be harmful in causing arteriosclerosis.

And, again, excesses in one's mode of living—in the use of alcohol, tobacco, different kinds of poisons as lead and mercury, and some of the infectious diseases, notably syphilis— with abundant meat food, not only produce arteriosclerosis but they are harmful to the thyroid gland, the antagonist of the adrenals.

Lorand concludes: "There exist two chief agencies for the production of arteriosclerosis.

"First—Hyperactivity of the adrenals causing a rise in blood pressure.

"Second—A degeneration of the thyroid gland which, when normal, antagonizes the first by lowering the blood pressure; for each time there is a rise in the blood pressure more blood is forced through the arteries, thereby causing them to dilate; and after repeated dilatations, the elasticity of the vessels will eventually be impaired, especially so in the aged where one part of the elastic fibers is already replaced by connective tissue. As a result of the arteriosclerosis, the passage of blood through the capillaries will be impeded and in consequence the work of the heart will be increased; likewise the nutrition of the vessel walls will be diminished. The best preventives, therefore, will be: First, to avoid all agencies which may tend to cause excessive activity of the adrenals and, second, to increase the activity of the thyroid."

From Dr. Lewellys F. Barker's classical paper on "The Causes and Treatment of the Condition Underlying High Blood Pressure" (address to the Ohio State Medical Association in 1920), I shall quote freely; as also one read in the Tri-State Association in 1921.

Dr. Barker says: "And I dare say that a review of your own experience will, like that of mine, convince you that though we already know a great deal regarding high blood pressure and its causes, our ignorance of the subject is still more impressive than our knowledge.

"The students of normal physiology have investigated the several factors upon which arterial tension depends. They have shown us, as you know, that they include (first) the distensibility of the vessel wall; (second) the

capacity of the vascular system, and (third) the degree of filling of the vessels, the latter depending (a) upon the volume of flow, in turn depending on the action of the left ventricle of the heart, and (b) the degree of resistance encountered, either through the viscosity of the blood or, more important, at the arteriolar barrier in the precapillary area. In normal states the changes in the width of the lumina of the arterioles depend upon the tonus maintained in their muscular walls, and this in turn is regulated, partly by a very complex vasomotor nervous system, consisting of the vasoconstrictor and vasodilator nerves of the vegetative nervous system, under the control of peripheral, spinal and bulbar centres; and subject to both pressor and depressor reflex stimulation, partly by direct chemical stimulation of the muscular walls or the nerve endings in them—by materials of endocrine or other metabolic origin."

We might proceed further with the physiological and anatomical aspects of cardiovascular troubles, but the above picture shows the etiology, as far as our present knowledge goes, of the simpler forms of hypertension.

As the general practitioner comes frequently in contact with these disorders, we find that they may be conveniently divided in three classes:

First—Simple Hypertension. We come to these, often accidently encountered, in routine examinations as for life insurance or secret societies, or our office work, where the blood pressure in middle adult life is found to be 160 or over, systolic. The heart is slightly dilated, the apex beat is forcible, there may be some headache, frequently dizziness or vertigo, there may be no appreciable ateriosclerosis and the renal function may be normal. These patients are often charged with nervousness and neurasthenia and their condition not seriously considered. These we call simple hypertension, so-called hyperpesia.

Second—We come to a stage that we will designate chronic hypertension. In this group of cases the maximal blood pressure may be two hundred or more and the minimal one hundred or more. There is demonstrable hypertrophy of the left ventricle with ringing aortic second sound; the patients may have polyuria, both diurnal and nocturnal. The urine is usually pale and of low specific gravity and contains from time to time a trace of albumin and a few hyaline or granular casts. The patients in this group may or may not complain of troublesome symptoms. Very often the neurasthenic symptoms referred to in the previous group appear in these patients and the majority of them, too, begin to feel the strain upon the heart muscle, complaining of a little dyspnœa on exertion.

These patients still seem to enjoy robust health. The conditions of at least some of the patients of this group, too, is classed by some clinicians under the designation "hyperpiesis," or essential arterial hypertension, though this designation would doubtless be restricted to the cases without palpable thickening of the peripheral arteries and without obvious renal decompensation.

Third Stage — "Chronic Hypertension with serious complications, cardiac, cerebral and renal." The majority of cases in the preceding groups sooner or later enter this group in which any one of several complications may appear.

Since these complications are often dependent upon an associated arteriosclerotic process, upon an associated renal disease, or upon both, many clinicians of today place all the patients in this group in the category of arteriosclerotic hypertension, or of nephritic hypertension.

Thus, due to a cerebral arterioslerosis, there may be a sudden cerebral hemorrhage with apoplectic stroke; or, due to a retinal arteriosclerosis, there may be a retinal hemorrhage with amblyopia or scotomota; or, due to an associated ceronary sclerosis with insufficient heart muscle, there may be attacks of angina pectoris, cardiac asthma, or of pulmonary œdema; or, due to the impaired nutrition of heart muscle with overwork of the heart in maintaining the chronic arterial hypertension, myocardial insufficiency may set in with all the signs of cardiac decompensation: dilatation of the heart, chronic passive congestion, dyspnœa, enlargement of the liver, oliguria, pronounced albuminuria, œdema of the lower extremeties and general anasarca; or, due to associated legions of the kidneys, renal decompensation of the kidneys may set in (especially in the course of an acute infection or of an associated myocardial insufficency) and the patient may become uremic, exhibiting the nervous symptoms (convulsions, temporary paralyses, disturbances of vision, twitchings, delirium, coma, headaches), the digestive symptoms (anorexia, nausea, vomiting, hiccoughs, diarrhoea), the cutaneous symptoms (pruritus, exanthems), or the blood findings (increased nonprotein nitrogen, increased urea-nitrogen), well known as concomitants of a uremic state.

"Is it not reasonable then, too," says Dr. Barker, "to conclude, that the uremic and renal complications, often terminating fatally, and known by the laity as 'chronic Bright's disease,' together with the dangers of heart failure and of cerebral apoplexy, largely accounts for the present-day dread of high blood pressure that so generally prevails?"

The causes of high blood pressure are many and varied. We have to do with the matter of inheritance; there is no doubt that this condition, or the tendency to it, is transmitted as is the tendency to tuberculosis and cancer. We all know of the apoplectic, the paralytic, the cardiovascular families. The wear and tear of modern business, mental and physical overstrain, especially among business and professional men who have burned the candle at both ends, those leading hard-working and anxious lives, taking insufficient bodily exercise or recreation, and often overindulging the appetites for food, for alcohol, for tobacco, for sexual gratification, for monetary gain or for the possession of power or fame. The human machine is forced to run at such high speed and under such a load that it soon becomes damaged by abuse, and instead of running along smoothly up to seventy or eighty years, it too often has to go to the repair shop at forty or fifty years of age.

High blood pressure may also be caused by focal and general infections. Typhoid fever, influenza, recurring or septic tonsillitis, pyorrhea, sinus infections, gall-bladder infections, prostatitis, diseased ovaries, etc. Syphilis is a frequent cause and certain poisons as lead and mercury. Autointoxications from disorders of digestion and the intestinal tract are frequent causes of troubles. Endocrine disorders are common with hypertensives, and there is some real connection between the function of the thyroid, hypophysis, suprarenals and gonads with high blood pressure. The science of medicine as exemplified by some of the foregoing quotations from eminent men is a beautiful thing to contemplate, but the average practitioner of medicine is frequently confronted with the proposition, What are you going to do about it? It has been said, "All that a man hath will he give for his life." These rich hypertensives would give us doctors millions of dollars if we could guarantee to them the right to continue indulging all the pleasures and luxuries of life safe from the dreaded high blood pressure and other cardiovascular troubles.

If we only had one given cause as we have in malaria, in yellow fever, in syphilis, there is no doubt we would find some therapeutic remedy or some quarantine prevention; but, alas, for the high blood pressure victim, the cause of his trouble is legion and his remedy uncertain. For nearly forty years I have done a fairly large practice, much of it being with our millionaire or tourist class, who flock to the East Coast of Florida for the winter months. Twenty-five per cent of these patients belong to the cardiovascular group; another 25 per cent to the gastrointestinal, and the remainder have all sorts of troubles, largely nervous prostrations and accidents. I have observed that children and young people, and I might say negroes those below forty years of age, suffer but little from cardiovascular troubles, except those caused by infections and focal diseases, such as scarlet fever, tonsillitis, diphtheria, rheumatism, influenza, intestinal parasites, and chilling from undue exposure. So we may pass over the cases of young people with advice simply in the line of prevention. When we come, however, to that great army of hypertensives between the ages of 40 and 65 (for the cardiovascular at 40 seldom live beyond 65), we have our problem as physicians.

In the treatment of cardiovascular troubles (this term to include high blood-pressure cases) a long list of remedies have been tried: Diet, baths, air, light, exercise, rest, recreation, massage, electricity, drugs, vaccines, sera, nursing, dentistry, surgery, glandular extracts, so-called radioactive waters. Certain environmental influences must be included in the remedial list, in which inherited tendencies play their part. Psychotherapy in the broad sense of dispelling fear and calming the patient's nerves, refraining from frequent examinations and creating an atmosphere of hopefulness, all play a remedial part.

The complex symptoms that we are first called upon to treat are found in well-developed cases. Our patients complain of lassitude, headaches, a particular fulness or feeling of bulging in the sides of the head, often with tinnitus aurium and vertigo. They are red-faced generally (though frequent exceptions in pronounced renal cases), are short of breath, heart's action generally accelerated and irregular, frequently unable to sleep in a lying-down position. The feet are frequently swollen, there is pitting about the ankles and puffiness about the face and eyelids. The bowels are sluggish and skin of body often pale

or yellowish. There is insufficient functioning of the kidneys and skin; the urine, generally albuminous, is dark in color and high specific gravity. If these cases go to the head, as we say, they wind up with apoplexy or paralysis and if they go to the kidneys the end is with anasarca, dropsy and uremia.

To lower the blood pressure, to restore the function of diseased organs, should be our chief aim. To this end, as Dr. Barker pertinently advises in the treatment of all diseases, omit nothing that might reasonably benefit the patient. For a long time iodide of potassium, or sodium, has been given systematically; so also have the nitrites and nitroglycerine, digitalis, alkaline salts, mineral oils, high-frequency electrical currents, hot baths, mineral waters, massage, etc.

In the treatment of my cases, I have found iodides disappointing (except in syphilitics), the nitrites generally disappointing, massage disappointing, and mineral waters, if in excess, likely to do harm. We should not drive nature too hard. Where the blood pressure is above 200 (and I have seen it as high as 270) and there is much headache, I have seen much benefit from acetphenetidin or phenacetine used in two or three grain doses, every three or four hours, as indicated. Where the tongue is foul and bowels sluggish, I have used calomel with great benefit and a proprietary laxative saline sold as sal-laxa: this acts well upon the bowels and keeps up elimination both through bowels and kidneys. Where the heart is rapid and pulse bounding (the radials and temporals full), I use a prescription of aconite, digitalis and bromide of soda. This acts beautifully in slowing down the heart and quieting the nervous system. When the kidneys are flagging, I use acetate of potash, with extract of squills, and where there is albuminuria, I use iron oxide with bitartrate of potassium. I find with these simple remedies great relief for my hypertension patients. Where the heart is enormously dilated, long periods of rest with very light diet prolong life and produce comfort; I have abstracted blood from the veins, but with no permanent benefit (venesection may occasionally forestall an apoplexy). The sleep remedies —veronal, trional and this group help a little, but there is danger to the heart. I use morphine only in the worst cases, dyspnœa and cardiospasm; its after-effects are bad. Many times in the pressure of impending death, I have had to resort to large doses of calomel, eleterin, epsom salts, pilocarpine, diuretin and hot baths, and in some few cases with marked relief, but in my experience there is no specific.

The matter of diet is extremely important, milk and cereals preferable to all other food. Rare meats should be used with caution; chicken, game, fish, and oysters in season are suitable articles of diet. Vegetables and soups from vegetables are good in moderation. I do not subscribe to a diet free of salt. Frequently cases come to my care who have been ordered to a salt-free diet, and I have found them to improve on addition of a little salt to their food.

Now as to prevention. Since the causes of cardiovascular-renal hypertension are many and arising from different sources, and since these diseases and deaths from them are on the increase, and since it is a well-recognized fact that the great majority of these cases are well-to-do adults passed middle life, let us inquire, What is the chief cause and how prevent these troubles?

The American people are prosperous beyond the wildest dreams of our Pilgrim Fathers; along with the acquirement of wealth has come leisure and the desire for luxuries; along with the luxuries have come the thirst for alcohol, tobacco and the indulgencies of all the passions. We have the mad rush for wealth, ambition for the high places in life, yearning for social recognition and the strenuous competition amongst our business men for commercial advantage. The fine mechanism of the human machine does not run along smoothly, as with the simple life, but every function and faculty is keyed up to the highest point of tension. The stomach is overloaded three times a day with rich food and condiments—tuned up in case of the rich with wine and highballs; with the poor with moonshine and ball potash. A full dinner is topped off with desserts rich in sugar, pastries, and wine; and between meals, coffee and tea is generously served to keep up the excitement. No wonder that the overburdened stomach turns into the intestinal canal a mass of undigested food to first congest the absorbents and poison the blood stream, to drive the heart and to overpower the kidneys in nature's effort to adjust itself to its impossible task. Autointoxication, if you please, but gluttony is a better term for these intemperates.

From the blood streams spring the issues of health and life. When the heart is forced, through overwork, to dispose of the poisons in the blood—stimulated by excessive eating, drinking and excitements—we are sure to have irrita-

tion in the walls of the blood vessels, irritation in the brain cells, irritation in the kidney tubules, irritation in the heart muscle leading to dilation of the heart, to interference with the function of the ductless and other glands, setting up high blood pressure and leading on to untimely death.

If temperance is the great law of life, temperance in all things is the surest preventive of hypertension.

If it were possible for us to have children well born and perfect; to bring them up as carefully as we do our thoroughbred animals, and protect them in early life against the wiles of the tempter; if we would teach them hygiene and the simple laws of health and life, and limit them to simple foods and require industrious, sober habits, we would in time greatly lessen the many cardiovascular troubles, lessen the increasing death rate, and raise up a stronger and long-lived race of men and women.

THE HODGEN SPLINT.

R. B. Harkness, M. D.,
Lake City, Fla.

In presenting this paper I am making no claim of originality, but simply wish to bring to your attention what I believe to be one of the most useful appliances available to us, in our attendance upon the injured.

This splint is not given the general use that it deserves, because the medical profession is not sufficiently familiar with its practical application. And I shall consider any time well spent that will enable me to more fully acquaint you with the merits of this device.

The Hodgen splint, which is a modification of the Nathan R. Smith anterior splint, was devised by the late Dr. John Hodgen, of Missouri, and was used extensively by him during the Civil War. The splint, as Dr. Hodgen left it, though quite satisfactory in the hands of an expert, was a crude affair, and the honor of perfecting it should be given the late Dr. George S. Brown, of Birmingham, Ala.

The work that Dr. Brown did in perfecting and simplifying this splint conferred a boon of no mean value on suffering humanity, and placed in the hands of the medical profession a device that should rank high among the appliances that make for a satisfactory and efficient service.

The Hodgen splint, as we have it today, consists of a rectangular frame of stout wire, conforming roughly to the length and thickness of the average lower limb; canvas, fitted to this frame in such manner that the injured limb rests snugly in a bed or cot. To this is added a suspension apparatus, consisting of four cords, each furnished with a tent block for adjustment, and fastened two on either side of the splint in such manner that the limb may be easily suspended. These cords are hooked on to a draw scale of twenty-five or fifty pounds capacity, and this, in turn, fastened to the main suspension cord, which is also furnished with a tent block for adjustment and runs through a pulley fastened into the ceiling of the room, or to a suitable frame erected over the bed, for suspension.

Fixation of the limb in the splint is secured by application of the ordinary traction straps of adhesive to the leg, and lower part of the thigh, if desirable. The leg should be shaved and the skin cleaned well before these straps are applied. These straps are fastened to the lower end of the rigid frame, thus securely fastening the limb to the splint, and now any amount of traction may be secured by regulating the angle made by the main suspension cord, in deviating from the perpendicular. It is a good idea to first allow this cord to hang at the perpendicular, register the weight of the suspended limb, now resting in the canvas cot, and then to secure such traction as is deemed sufficient. It is best to increase the traction gradually up to the desired point; this is done simply by raising the limb, or by pushing the bed back a little. The fixed pulley should be about ten feet above the bed, in order to give the patient as much freedom of movement as possible.

To keep the sides of the splint from pressing in on the limb, a loop of wire of the same thickness as the rest of the splint is hooked into the short loops that are turned up at the ends of the wires, forming the sides of the splint. This loop arches across the base of the thigh and may be made to conform to the thickness of the thigh by being bent, bringing the sides of the splint closer together, or further apart, as may be indicated.

In applying the splint, it is bent at the knee level to any desirable angle, thus securing the principle of the double incline plane. This angle may be increased or decreased, to suit the fancy of the attending surgeon or the needs of the individual case.

This splint, while devised particularly for the treatment of fractures of the femur, may fre-

quently be applied with a high degree of satisfaction in fractures of the leg, particularly compound fractures.

The advantages claimed for The Hodgen splint are:

First—Its simplicity and the ease with which adjustments may be made.

Second—The fact that the injury is at all times open to inspection.

Third—The injury may be submitted to fluoroscopic or radiographic examination, at the pleasure of the surgeon, without disturbing the dressing.

Fourth—The fact that in doing dressings in the treatment of compound injuries the necessity for several assistants is entirely eliminated.

Fifth—The fact that this splint gives to the patient the greatest possible liberty of movement and comfort.

PYORRHEA.*

A. B. WHITMAN, D. D. S.,
Orlando, Fla.

It is a great pleasure and a privilege to be permitted to address you.

I am not speaking as an expert on the treatment of pyorrhea, but only on some phases of its connection with systemic infection.

In the dental literature of the past few years, more has been written on this disease than perhaps any other subject. This is due to the recent interest aroused owing to the relation of the disease to the health, to its often obscure causes, to its elusive, uncertain nature as to diagnosis, prognosis and treatment.

There is still doubt as to whether an advanced case is often cured in the way that it may not still be a menace to the patient's health. There is no doubt that many cases can be successfully concealed by operative work on the teeth and adjoining structures and by medication.

The disease is an uncertain and elusive one to the patient because the condition is seldom realized until it has progressed to such an extent that its cure is uncertain.

In some few cases a painful condition may develop in the early stages. There may be an acute inflammation of the soft tissues. The teeth may become sensitive and painful. Some few patients will notice an odor or taste, but usually are not conscious of anything wrong until the case is more or less hopeless as far as saving all of the teeth permanently is concerned.

The early stages may be easily overlooked by many dentists in making the still very customary free dental examination, or in cleaning the teeth, frequently a very superficial operation, removing visible tartar and stain only and not exploring under the edges of the gums at all.

The disease is an uncertain, elusive one for the dentist, because it is hard to tell whether a given case is affecting the patient's health or not; it is uncertain whether it can be cured without extracting the teeth, or whether, if apparently cured, it might not still endanger the patient's health.

While it is often said that a large per cent of people over thirty-five years of age have pyorrhea in some form, this means very slight, no infection being present.

It is my estimate that of people who have reached middle life perhaps 8 or 10 per cent have pyorrhea or periodontoclasia in some form developed to a sufficient extent to affect their health.

Will endeavor to direct your attention to a few definite facts only, which may be of aid in making a diagnosis in cases where the patient's health is suffering and evidence of the existence of a focus of infection is noted.

First, a few definitions as to types and stages. I will not mention the various types of gingivitis or the early stages of periodontoclasia, as infection is seldom present.

Periodontoclasia: As its name implies, is a destructive degeneration of the tissues surrounding the roots of teeth.

The area of destruction is usually filled with granulation tissue, the portions of the roots of the teeth in this area may be covered with rough, dark serumial tartar.

Infection is usually present. The granulation tissue is about the same as that found in an abscess cavity at the root apex of a dead tooth, where there is a focus of infection. This condition is very common and is very easily overlooked.

Pyorrhea Alveolaris: In a true case of this disease there must be one or more teeth showing the following symptoms: Alteration of the color of the gum from normal pink, pocket formation under the gum beside the tooth root with a purulent discharge, destruction of the alveola process, formation of granulation tissue in its

*Read before the Florida Midland Medical Society, at Sanford, April, 1923.

place, loosening of the teeth. Infection nearly always present. This condition is easily recognized.

The cure of this last condition is so uncertain that, for the class of patients we are considering, extraction is nearly always indicated. Just as a prophylactic step, with a view of eliminating a dangerous element and a factor in disturbed metabolism, it is eminently desirable.

In cases deeply affected, extraction should be followed by thorough curettment of necrosed bone and removal of all granulation tissue. It is the accepted practice to only remove a few teeth at a time, but to thoroughly clean up each section. The gum should be retracted, the rough, sharp edges of more or less necrosed bone clipped off, leaving a somewhat smooth surface and giving access for removal of deep-seated granulation tissue and curettment of necrosed bone. There is no objection to this style of operating, except that it is some work, requires some skill and an aseptic technic.

There is no additional after-pain, recovery is quicker, and the mouth is left in the best condition for artificial dentures. To merely extract these teeth is leaving a lot for nature to do, to eliminate all of this tough granuloma, perhaps deeply located in more or less necrosed bony sockets.

There is a pronounced tendency for the gums to heal over in a few days, in which case the affected area can only be removed by absorption.

Of course there are many cases where the simple extraction of the affected teeth is all that is indicated. I should say that such a case might be where the alveolus has been nearly all destroyed and the gums receded, as in such a case there may be but little affected bone left and any other pathologic tissue is near the surface.

Remaining pathologic conditions have without doubt been responsible for the continuation of disturbances in many cases in which, after tooth extraction, improvement was anticipated. This has caused a question in the minds of some medical men as to the validity of the focal infection theory, for they did not realize that extraction alone might not accomplish the elimination of the infection.

There seems to have been in the minds of some medical men the idea that the removal of an infected tooth may be followed by a flow of pus, or that pus may be visible, but in most cases where the removal of jaw infections has been of distinct benefit to the patient, no pus was visible, but only the tough, dark, purplish red granulation tissue in partly necrosed, discolored, bony sockets, before referred to. This applies to apical abscesses as revealed by the X-ray picture as well as to periodontal infections. These granuloma, except in acute stages, are not filled with visible pus.

Cases of suspected periodontoclasia deserve the most careful examination. There may be little to indicate its existence. The gums may look nearly normal, in color may be pale pink, purplish or bluish pink or dark red. They may be neither receded or hypertrophied to any extent and may appear to hug the necks of the teeth closely. The teeth may be clean if the patient is careful of the mouth.

If there is a history of irritated, bleeding gums, which condition was greatly improved by frequent cleaning and medication by the dentist, it may be that the disease has been successfully concealed, but unless it has had the attention of a skilled peridontist, very likely some of the deep infection remains.

X-ray pictures will show, at least partially, where the bone between the teeth or alongside of the roots has been destroyed, forming pockets likely to be filled with granulation tissue.

If the pocket extends nearly to the end of the root, the tooth should be condemned; if only half way to the end of the root, the condition may be successfully treated and any infection removed. If the picture shows a dark spot where the bone has been destroyed in the fork between the roots of a molar tooth, the tooth should be condemned, as this spot will be likely to continue to harbor infection in spite of all treatment.

Careful probing will disclose much, but is probably not practical for the average physician. Transillumination should be good in the hands of the medical man as not requiring any acquired minipulative ability, only a practised eye. The infected area or tooth roots will show more or less dark and cloudy as compared with the clear pink of the normal structures. However, if the jaw is very thick or of dense structure, unless the light is very strong, infected areas may not be noticed, but wherever you see a dark area by this method there is likely to be infection.

The various types classed as periodontoclasia are in many cases curable, if the pockets are not too deep or the teeth too much loosened. With delicate curretts, files and other instruments, the affected portion of the root is scraped clean of tartar, dead peridental membrane and softened

tooth structure and must be left perfectly smooth. The work must extend to the deepest parts of the affected area. The granulation tissue is removed and the bone curetted, leaving only healthy bone.

When healed, the gums will be more or less receded, even exposing a large part of the tooth roots, but the teeth may still be comfortable, useful and healthy. In but few cases will much bone be regenerated. Therefore, unless the gum recedes, the pocket remains with the likelihood of infection.

It is evident that this work requires a high degree of skill and a developed delicate sense of touch for its success, except perhaps in the case of easily accessible teeth where the pockets are not deep. Therefore, if the patient's health is suffering, do not try to save molars and seldom bicuspids, if deeply affected.

A recent medical writer describing the examination for infection in cases of rheumatism, says: "Examine the mouth thoroughly and do not take the dentist's word for it. Scrap all crown and bridge work, eliminate anything suspicious of pyorrhea, all old stoped teeth should come out. If a tooth is suspected, extract; remove the teeth and the gums will take care of themselves."

The mistake here is that many harmless teeth will be removed and real infections overlooked. A tooth is not infected because the filling is old and black, a gold crown may be placed on a perfectly healthy tooth owing to defective enamel or as a reliable support for bridge work. Probably this writer might overlook well-matched porcelain crowns; they may be very natural looking, but are usually mounted on dead roots and very likely to be infected. He would hardly notice the very common type of periodontoclasia, harboring granulation tissue.

I must admit, however, the writer's estimate of the average dentist's dependability for passing on these cases is correct.

Why is this? Even the average dentist should be well fitted to determine the existence of infection of the mouth or jaws.

Partly tradition. The great aim of dentistry of a few years ago was to save the teeth, and with many dentists this tendency still persists, regardless of conditions. Partly also with some who still give the free dental examination, with the idea of charging only for work if needed and he can so plan it as to make a large showing with a moderate amount of labor.

To accomplish this, he may want to retain one or more somewhat infected or suspicious teeth which may be difficult to extract, and if lost may mean much more work in constructing artificial teeth to replace those lost, and the artificial restoration may not be nearly as satisfactory to the patient if the suspicious tooth or teeth are removed. For instance, a dead cuspid in fair condition or a second molar with poorly filled roots may serve admirably as abutments for a fixed or removable bridge or the retention of a small partial plate.

Patients, owing to the old-time custom, are much inclined to get prices or estimates for their work, including the extracting and restoration. Some will compare prices with others who have had seemingly similar work done. Others will go around to other dentists getting prices.

I have never heard of a patient inquiring about a dentist ask if his work in eliminating infection is thorough. They ask, does he hurt, did his work suit you, are his prices reasonable.

A great trouble with the average dentist is fear. Afraid of the other dentist, afraid of losing a patient.

The other dentist may quote prices on the basis of leaving these suspicious teeth. The patient does not know the difference, the medical man may never find out.

The patient will not judge the dentist by whether or not he gets well. Probably the medical man will be held accountable for this. The dentist will be judged by the trouble and inconvenience the patient is put to and by whether the artificial teeth are satisfactory.

Therefore, when you refer your patients suffering from the effects of infection to a dentist, do not select one only because he is a good friend of yours and popular with the public, but choose one who has the courage to do what he knows is best for the patient, even if he does have to put the patient to more inconvenience than the other man might.

Another idea, quoted from the medical writer: "If the teeth are removed, the gums will take care of themselves." It is true that they will in many cases and that they will usually heal over quickly and seem all right, and X-ray pictures may not show anything definite particularly in the upper jaw, or if a porous or necrosed area is noted in the picture it may be hard to locate exactly in the mouth. In cases of deep-seated apical abscesses or periodontal infections, such areas may remain in spite of, or perhaps because of, quick healing of the gum.

At the Mayo clinic, during the year 1922, some twenty-four thousand patients were examined in the dental department. If I remember right, upwards of 20 per cent of those examined were operated for the removal of mouth infections.

A large number of those operated on were cases which the operators speak of as being worked over, that is, their teeth at some time before had been X-rayed and infected ones removed. Some were edentulous, but full-mouth pictures were taken of those examined without exception, and small root tips, difficult to remove, and infected areas in the bone were found and eliminated by radical operations. By this I mean cutting out a section of the bone, including the infected root or area, leaving only sound bone. The soft parts are then replaced and held by a single stitch. There will be little after-trouble and parts are left in the best possible condition for artificial teeth.

By such methods, after careful diagnosis and due consideration, we should have few cases where useful and comfortable teeth are sacrificed without beneficial results.

The Mayos have been doing this for several years and are doing more and more all of the time.

There should be dentists in every town fitted to do this work. While it requires aspetic conditions not found in the average dental office and some surgical ability, any skillful dentist can fit himself to do it.

PHYSICIAN SUMMONED BY RADIO.

The steamship West Cahous, lying at anchor in Baltimore harbor, about nine miles from the city, needed medical help at about 3 a. m. recently and needed it quickly, says the U. S. Public Health Service. A member of the crew had fallen into the hold and had hurt himself seriously. So the captain of the ship sent a wireless broadcast asking help.

The call was picked up, not in Baltimore, nine miles away, but at Cape May, N. J., about 100 miles due east of Baltimore. As Cape May was separated from the West Cahous by parts of New Jersey and Delaware and by the eastern shore of Maryland, not to mention Delaware and Chesapeake bays, no direct help from it was possible.

But the operator was on the job. Promptly he consulted the long distance list in the Baltimore telephone directory and called up the residence of the Public Health Service surgeon in charge of the Marine Hospital in Baltimore—100 miles to the west. The surgeon, roused from sleep to receive the message, asked him to radio certain emergency treatment to the West Cahous and to direct the captain to send a boat to a certain pier in Baltimore, where he would find a surgeon waiting to go out to the ship with him. And so, in the middle of the night, in less than an hour, a wireless-controlled sea-going ambulance carrying a Public Health Service officer reached the side of the injured sailor and brought him later to the hospital.

GEORGE DELOS KENNEDY
1881—1923

The members of the Duval County Medical Society were greatly shocked to learn of the sudden death of Dr. George D. Kennedy.

Dr. Kennedy was a graduate of the Michigan School of Medicine and Surgery, Detroit, 1904.

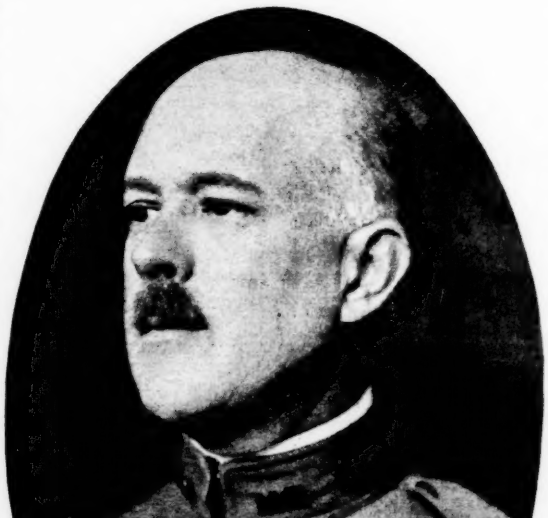
He had practiced for many years in Mandarin and Jacksonville and was a staunch supporter of organized medicine. In addition to membership in his county and state society, he was a member of the Southern Medical Association and a Fellow of the American Medical Association.

PROPAGANDA FOR REFORM.

Peptone in the Treatment of Migraine.—The Council on Pharmacy and Chemistry publishes a preliminary report on the experimental status of the use of peptone in the treatment of migraine. Drs. Joseph L. Miller and B. O. Raulerston report that the intravenous administration of Peptonum Siccum-Armour brought about improvement in a considerable number of cases. The council points out that commercial peptones are heterogenous mixtures of uncertain composition, and that the results reported may have been due to tissue impurities rather than to peptone itself. It is, therefore, evident that the reported results cannot be made the basis for a rational treatment of migraine. Peptonum Siccum is stated by Armour & Co. to contain 90 per cent of protein. Seventy per cent of the protein content is in the form of peptone and secondary proteoses, while the remaining 30 per cent is in the form of amino-acids. Those who wish to make experiments with peptone in the treatment of migraine should use the particular peptone used by Miller and Raulerston or one which has an essentially similar composition. (*Jour. A. M. A.*, June 30, 1923, page 1910.)

STEPHEN R. MALLORY KENNEDY, M. D.
1878—1923.

Mallory Kennedy is dead. These were the sad words that passed from lip to lip among members of the medical profession of the state of Florida on July 11, 1923. Few members of the profession have been loved more than was Mallory Kennedy. None will have a monument of endearment greater in the memories of those who were fortunate enough to be numbered among his friends. The very circumstances under which he lived and carried on with strength of mind and wonderful fortitude were such as to inspire admiration. For many years afflicted with a "heart block," he knew that any day might be the last. Still he led a near-energetic and a most useful life. A handicap that would render many of us useless members of society seemingly held no fears for him.



A man of keen wit, a peer among entertainers and a Prince of Good Fellows — one of Nature's Noblemen, these will be our remembrances of the character of this brave and courageous man.

Dr. Stephen R. Mallory Kennedy was born in New Orleans on November 24, 1878. He received his preliminary education in New Orleans, later entering the Roanoke College of Virginia. He received his degree in medicine from Tulane University in 1903, and became associated with the Louisiana State Board of Health, but shortly moved to Pensacola and entered the United States Public Health Service. His first assignment was as Medical Officer in charge of the United States Marine Hospital at Pensacola where he remained until 1917. In May of that year he was commissioned a Captain in the Medical Corps of the United States Army, arriving in France in June, 1917. He was loaned by the United States authorities to the British government almost immediately and served during the early and strenuous days of the western front activities. For his service with the British Army he was awarded the decoration of the British Military Cross. He was caught in a severe gas attack which resulted in his being invalided home to the United States. Dr. Kennedy later received an assignment to duty at Camp Joseph E. Johnston, Jacksonville. He returned to his pre-war duties with the United States Public Health Service in Pensacola early in 1919. During 1920 bubonic plague appeared in Pensacola, Dr. Kennedy being highly commended by his superiors for the manner in which he met and dealt with an extremely grave public health problem.

At the forty-eighth annual meeting of the Florida Medical Association held in Pensacola during May, 1921, Dr. Kennedy was unanimously elected president of the association.

Besides his host of friends in the medical profession and among the laity, Dr. Kennedy leaves a devoted wife and a loving son to mourn his loss. *Requiescat in pace.*

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OUR LATE PRESIDENT.

With the death of Warren G. Harding, a terrible loss to the country and entire world, Florida suffers and bows her head in grief and deepest sorrow.

It was to Florida Mr. Harding wended his way in seeking pleasure, freedom and relaxation from the cares and burdens of his great office. It was as the man, the typical and generally loved American citizen, that Warren Harding was best known to Florida, rather than the statesman high in the councils of his country for many years and for the last two years of his life Chief Executive of the American Government.

Comments of the press throughout the country give manifest indication of the wonderful hold this American had on the hearts of his fellow countrymen—regardless of political affiliations.

Warren G. Harding was truly loved by all America, but no section of this great country loved him better than Florida.

FLORIDA AND RECIPROCITY.

It becomes more and more evident each year that the medical profession of Florida should be wide awake concerning the matter of the Florida State Board of Medical Examiners granting applicants' license to practice medicine through reciprocity with other states. Few will deny that reciprocity with Florida would mean much to physicians already licensed to practice in other states, but that other states have little to offer Florida medical men in return. During the last session of the legislature in Tallahassee, interested parties succeeded in passing, in the lower house, a bill that made it compulsory for our Board of Medical Examiners to grant license upon their application to all graduates of Class A schools who had been granted a license, through examination, by any other state in the Union. The bill died on the calendar of the upper house. It was only during the closing days of the 1923 session of the legislature that knowledge was obtained concerning the proposed bill. It is very easy to see how in the hands of interested parties and in the absence of objection or opposition such a bill might have passed both houses during the busy closing hours of the legislature. Under such conditions passage by unanimous consent might not be hard to secure.

Florida cannot now and never will be able to

countenance license by reciprocity. The leaders of our profession throughout the state are a unit on the question. THE JOURNAL believes, however, that we should clearly show our sister states that our stand is taken in the interests of the general public rather than from selfish motives. The whole trend of medical legislation throughout the entire country for the past decade and longer has been to demand of those who wish to follow the practice of medicine as a life career, educational qualifications that would justify the granting of license by the state body. In only this manner can the state protect the public from the charlatan, the quack and men of mediocre or no ability.

We should also make it plain that, while we cannot harbor the snow birds that would feed with us during the winter months, we adopt a liberal attitude toward medical men, as Florida does to all men, who wish to make the state their bona fide home. We have no desire to adopt a selfish attitude toward those who have the necessary educational requirements to qualify under our medical laws. We would emphasize that men who can qualify by examination to practice medicine in our sister states will have no trouble in meeting our requirements on the same basis.

To reiterate — Florida will never stand for license by reciprocity, she will at all times welcome the bona fide citizen, the graduate of a reputable school armed with the necessary educational qualifications. Florida cannot afford to license by reciprocity the thousands of men broken in health, possibly with mediocre qualifications, graduates of thirty and forty years ago, unable longer to stand the strain of practice in the rigorous winter climates of other portions of the United States, who simply wish to come to Florida for a few months each winter, with the object of "doing a little work," which in too many instances would subject our citizens to discarded methods and riddle our smaller towns with disqualified, uneducated and old worn-out physicians.

RECENT PHYSIOLOGIC FINDINGS REGARDING INSULIN.

As could be expected, the almost dramatic clinical results that have attended the introduction of insulin into the therapy of diabetes have focused attention in many places on the nature of this uniquely potent product. The search for the substance to which the therapeutically active products owe their efficacy ought to be, and assuredly will be, pursued assiduously by scientific talent until some reward is secured in the discovery of the actual hormone. Thus, the history of research which led to the isolation of epinephrin and thyroxin is likely to repeat itself, whereupon the organic chemist will find a stimulus to further labors in the direction of artificial synthesis. It would, indeed, be a fortunate and happy circumstance if the approaching centennial of the first artificial synthesis of a substance, urea, earlier assumed to owe its origin to the inimitable "vital" activity of living tissues, could be made to encompass the synthetic production of a number of the recognized physiologically potent hormones which have baffled the chemical investigator.

Meanwhile, the enthusiasm for helpful clinical therapy must not be allowed to overshadow entirely the pressing need of further fundamental investigations on the genesis of diabetes, the origin of insulin, the variations in its production in the body, and the mode of its action. Insulin therapy, as shown by the clinical articles appearing in this issue, is essentially a palliative. The underlying defect in the organisms that fails to burn its sugar probably remains to be discovered. The patient prosecution of the problem of diabetic pathogenesis must not be obscured by the remedial blessing.

Attention may well be called, in this connection, to the researches of Murlin and his collaborators[1] at the university at Rochester, N. Y. These show that, through perfusion of the surviving pancreas, solutions can be obtained which promptly raise the respiratory quotient of diabetic animals. As this is clear evidence of actual combustion of sugar in the body, it becomes an excellent criterion of relief from the diabetic condition.

Insulin-containing extracts have already been secured from a considerable variety of sources, including various vegetable products; at any rate, the extracts have been found to affect the level of the blood sugar after they are introduced into the living body. The Rochester experiments duplicate, in a sense, the process by which the blood may normally acquire its supply of insulin from the pancreas. According to them, insulin is extracted by perfusion of the pancreas with acidulated Ringer's solution more readily than with the same fluid made slightly alkaline. Another feature with respect to the behavior of

insulin has recently been elucidated by E. C. Noble and J. J. R. MacLeod.[2] It has become well known to all who have worked with the hormone that overdosage leads to serious symptoms associated with the consequent hypoglycemia. The symptoms give the impression that some substance having a highly irritative influence on the central nervous system has become developed. As Noble and MacLeod remark, it can scarcely be the case that this stimulus is afforded by a lowered percentage of glucose in the blood per se. It is more likely either that the hypoglycemia is related to the setting free of some toxic metabolic product which in the normal animal is directly or indirectly antidoted by a certain concentration of glucose, or that it causes some change in the chemical or physicochemical equilibrium within the cells, which results in a disturbance of their normal functions. One of the ways by which light can be thrown on this question is to see whether sugars other than glucose have the power to remove the symptoms. If a given sugar fails to have this effect, evidence is afforded not only that it cannot itself act like glucose, but also that it is not converted, to any considerable extent at least, into glucose in the animal body. The latest studies from Toronto show that the only sugar which can definitely antidote the symptoms that accompany the hypoglycemia due to insulin is glucose. Levulose, galactose and maltose may be followed by temporary slight improvement in the symptoms, and they cause a marked increase in the blood sugar. Arabinose, xylose, sucrose and lactose have no apparent effect on the symptoms, although there may be an increase in the reducing power of the blood. Glycerol and alkalis have no effect on the symptoms. Rational insulin therapy must now be placed on the safe basis of profound physiologic studies in which every detail of the reactions of the hormone has been carefully considered. Then, indeed, it will not be too much to expect even greater advances in the therapy of the abnormal metabolism of the carbohydrates.—*Jour. A. M. A.*

1. The Influence of Neutral or Alkaline Perfusates on the Respiratory of the Antidiabetic Substance (Insulin) by Perfusion of the Pancreas, Metabolism of Depancreatized Animals, Am. J. Physiol. 44:330 (April) 1923. Murlin, J. R.; Clough, H. D.; Gibbs, C. B. F., and Stone, N. C.: Extraction of the Antidiabetic Substance (Insulin) by Perfusion of the Pancreas, II, Influence of Acid Perfusates upon the Blood Sugar, D:N Ratio and Respiratory Metabolism of Depancreatized Dogs, ibid. p. 348.

2. Noble, E. C., and MacLeod, J. J. R.: The Influence of Sugars and Other Substances on the Toxic Effects of Insulin, Am. J. Physiol. 44:547 (May) 1923.

THE CONTROL OF VENEREAL DISEASE.

Although numerous panaceas for the prevention and control of venereal disease have been suggested, none seem to have sufficient virtue to warrant general acceptance. During the war, committees were appointed by practically every military medical service, and various methods were tried on a large scale, but the methods applicable under military conditions, with perfect control, are not generally adapted to civilian life in which the individual has freedom.

About a year ago, the minister of health of Great Britain appointed a representative committee to inquire into certain aspects of the problem, particularly with a view to answering two questions: (1) What, in the present state of knowledge, are the most efficient medical measures for preventing these diseases, and (2) How far is it ethically justifiable to apply such measures? The committee has considered not only the medical measures involved but also the social aspects of venereal disease control; it felt that no purely medical measures could be successful in controlling these diseases. It held that the extension of knowledge as to the nature of the diseases and their consequences is of first importance. The community should be made to appreciate that:

(*a*) Promiscuous intercourse is the main cause of the prevalence of venereal disease.

(*b*) There is no absolute preventive except continence, and a single exposure may result in infection.

(*c*) A large number of the sufferers from venereal disease are innocent persons, especially women and children.

(*d*) Syphilis is a disease of great gravity, which, if not treated in its early stages, may have serious results, including affections of the circulatory system and of the nervous system, as, for example, general paralysis of the insane.

(*e*) Syphilis is transmissible by a mother to her children, and is a frequent cause of miscarriages, stillbirths, and deaths in early infancy, and, in children who survive, of mutilating deformities, deafness, blindness, mental disease and other defects.

(*f*) Gonorrhea is a more serious disease than is commonly believed, and, if not promptly treated, may have serious after-consequences.

(*g*) Gonorrhea is a frequent cause of sterility and serious pelvic disease in women, and a cause of blindness in children born of women suffering from gonorrhea.

(*h*) The presence of these diseases in the community is a menace to the maintenance and advancement of the physical and intellectual standard of the race.

The medical measures seem to fall into two categories: those for preventing disease in persons exposed to infection and those for rendering

noninfective and curing persons already diseased. The British committee was in thorough agreement with investigations made elsewhere to the effect that the chance of failure for disinfection increases rapidly as the interval between the exposure and the application of the disinfectant lengthens. Disinfection within an hour, it is said, is generally successful. It was agreed that it is extremely difficult for a woman to disinfect herself, and that the prospects of success of disinfection in the case of a woman are greatly less than in the case of a man. After a thorough consideration of all the evidence available as to the value of disinfection, the committee concluded that the community in which there has been efficient instruction, and in which such control and influences as have been mentioned obtain, may reasonably expect substantial results from prophylactic measures, although the actual results are often less favorable than has been claimed. The committee was especially insistent on the belief that there is no justification for putting obstacles in the way of individuals who desire to procure the necessary disinfectants, but added that the laws should be altered so as to permit a properly qualified pharmacist to sell such disinfectants in a form approved and with instructions for use approved by some competent authority. It added further its belief that the commercial advertisement of such disinfectants should be prohibited.

Instruction by competent physicians in charge of clinics was considered to be the best method for teaching the prevention of infection, and the committee agreed that money spent on a general system of providing facilities for self-disinfection would certainly be less profitable than money spent either on the treatment of disease or on those measures of education and improvement of social conditions referred to in the list already quoted.

The committee's opinion as to the treatment of venereal disease is enlightening, in view of similar observations which have been made in this country. "Speaking generally," says the report, "the general medical practitioner is not yet adequately equipped with the most advanced knowledge of venereal diseases and their treatment to enable him to deal competently with all the cases that come before him, and an improvement in medical education in regard to venereal disease is necessary." Further, the work of existing venereal disease clinics is of high value, and the system is one that ought to be encouraged, extended and improved. In this connection the committee points out that discontinuance of treatment is not so common as the general discussions seem to indicate, and that secrecy is highly desirable if patients are to be induced to attend the clinics and to continue treatment. "In the present state of public opinion," says the report, "any system of general compulsory notification of venereal disease would tend to concealment and would prove a backward step." The survey also led to the belief that the venereal diseases are declining at a substantial rate, as they were before the war, and that increased attention along the lines indicated will result in a still greater diminution of such cases.—*Jour. A. M. A.*

COUNTY SOCIETY NEWS.

[IS YOUR COUNTY SOCIETY REPRESENTED IN THIS COLUMN? IF NOT, THE RESPONSIBILITY RESTS WITH YOUR SECRETARY. THE JOURNAL FURNISHES HIM EACH MONTH WITH PAPER AND A SELF-ADDRESSED STAMPED RETURN ENVELOPE. SEE HIM ABOUT IT.—Ed.]

COLUMBIA.

The Columbia County Medical Society has worked out a scheme of holding two meetings per month and by combining with the staff of the U. S. Veterans' Hospital No. 63, of Lake City, is enjoying a number of most instructive gatherings. At each meeting there are two clinical cases or case histories presented: one by a representative of the government institution and one by a civilian practitioner. The whole case history is gone over together with the laboratory and X-ray findings, treatment and outcome of the case. At the close a general discussion is indulged in and points of especial interest are developed. It is the intention of the physicians enjoying the privilege of these meetings to invite from time to time physicians from the surrounding territory to attend these meetings.

Dr. L. M. Anderson, of Lake City, recently attended the session of the Rotary International at St. Louis where he made quite a hit with his "silk Palm Beach" suit.

Dr. W. M. Ives, of Lake City, is spending the month of July in Boston attending the pediatric seminar at the Harvard Medical School. During August Dr. and Mrs. Ives will visit friends in Maine and later will be the guest of Cadet Mackey Ives at the U. S. Military Academy, West Point.

DADE.

There has been great activity around the Miami City Hospital the past few months, including the completion of the nurses' home, accommodating thirty nurses; a new building containing private rooms, a maternity ward, delivery room and nursery. Another unit recently completed is the isolation building containing fourteen rooms for patients, two nurses' rooms and preparation and dressing rooms. The new surgical unit is being equipped at the present time, and will be opened within a couple of weeks. This building contains two operating rooms, emergency room, bacteriological and pathological laboratory, X-ray laboratory, physicians' shower and preparation rooms, offices and morgue.

Bonds for $100,000 have been voted by the city for another building for wards. A laundry, power plant and permanent corridors uniting the various units will then be built.

The present plant contains beds for one hundred patients, and is standardized according to the rules of the American College of Surgeons.

The following physicians have recently located here:

Dr. J. A. Simmons, from Arcadia, Fla.

Dr. M. J. Flipse, formerly of Cincinnati, University of Cincinnati, 1921, is associated with Dr. A. G. Holmes.

Dr. H. H. Hopkins, Harvard Medical, 1922, has located in the First National Bank Building.

Dr. L. J. Page, of Dublin, Ga., Emory, 1916, has located here.

Dr. A. H. Palmer is looking for an office.

Dr. J. S. McKenzie, of Cordele, Ga., has located at Lemon City.

DUVAL.

The regular meeting of the Duval County Medical Society was held in the Seminole Hotel July 3, 1923, with a fair attendance. Dr. B. L. Arms read a paper on "The Control of Diphtheria," and Dr. R. M. Baker presented a clinical case with "An Obscure Syphilitic Condition of the Liver." Drs. O. V. Burnett and C. W. Johnston were elected to membership in the society. Dr. Frederick Bowen, who has been out of the city for the past few months because of ill health, has recovered and will return during August.

It is with sincere regret that we report the sudden death of one of our beloved and loyal members, Dr. Geo. D. Kennedy, of Mandarin.

As a result of a recent state law the Duval County Board of Charities and the Duval County Tuberculosis Association have become merged and are now known as the Duval County Welfare Board. The new hospital, designed for the care of tubercular patients, is being enlarged and will be equipped to care for all classes of indigent patients of Duval county. It is the impression of many throughout the state that our local county hospital will treat charity patients from any other county. Under this erroneous idea many patients are sent to Jacksonville each year at a needless expense, and are either returned to their homes, or cared for by some local charity organization. One of the greatest needs of our state at the present is a large charity hospital supported by state taxation.

HILLSBOROUGH.

Dr. J. B. Farrior has been elected chairman of the Bureau of Public Health and Hospitals of the Tampa Board of Trade, and is also a member of the Board of Governors of that body. Dr. Farrior is a worker and the Medical Society, 60 per cent of whom are Board of Trade members, are giving him their support in every way.

Dr. C. A. Andrews is in Chicago doing special work in dermatology, and expects to be away about four months.

The Hillsborough County Medical Society held their annual picnic on July 12th, at Lake Stemper, north of Tampa, on the Lutz road. The physicians, their wives, children and friends to the number of one hundred and fifty were present, and every one reported a most enjoyable time.

Fishing, boating, bathing and dancing were among the amusements enjoyed.

Music was furnished by a five-piece orchestra and the final dances included an old-fashioned square dance.

The lunch, served from long tables, cafeteria style, was of wide variety, plentiful, and tasty beyond description, and no one presented any indications of having had a restricted diet to follow.

Arrangements for the entire affair were in the hands of a committee of five ladies, Mesdames Adamson, Marney, Efird, Mitchell and Dickinson, and a rousing vote of thanks was tendered them for their efforts in making this affair an unqualified success.

Dr. A. J. Grimaldi is taking a year's post work at the New York Eye and Ear Hospital.

Dr. Blackburn Lowry will soon open offices in the Citrus Exchange building, Tampa, and will confine his work to eye, ear, nose and throat. Dr. Lowry was formerly connected with the American College of Surgeons in Chicago.

MANATEE.

Friday evening, July the 27th, the Manatee County Medical Association will give a banquet to the Sarasota County Medical Association at the Bradentown Golf and Country Club.

ORANGE.

Dr. C. A. Coffin, of Winter Park, is spending the summer on his mountain farm at Bats Cave, N. C.

At the July meeting of the society, Dr. Gwynn gave a most interesting paper on the "Intravenous Use of Hexamethylenamin and Chronic Urethretis" and Dr. Puleston, of Sanford, on the "Greatest Weakness of the Medical Profession."

A committee was appointed to take under advisement the formulating of some plan, both locally and state-wide, for a more systematic education of the public regarding various methods and systems of treatment.

Dr. Denton is spending the month of August at Daytona Beach, Florida.

PINELLAS.

The contract has been let for a seventy-five-thousand-dollar addition to the Mound Park (city) Hospital. Construction has been completed and the furnishing is now being done of the new Mercy (colored) Hospital in St. Petersburg.

Dr. L. Lambdin and Dr. Harry Welch, of St. Petersburg, are absent on a six-months vacation and postgraduate trip to England.

Dr. R. H. Knowlton is working with Dr. Frederick Allen at the Psychiatric Institute in Morristown. Dr. O. M. Knox recently returned from a six-weeks course in the children's clinics in Chicago.

Dr. H. W. Wade has entirely recovered following the removal of a kidney stone.

Dr. R. D. Murphy is in New York for three months' work in laryngology and otology.

POLK.

Dr. R. H. Moody, of Winter Haven, is spending a month in Alabama. His family is with him.

Dr. S. A. Lindsey, of Ft. Meade, and Miss Irene Hammett were married on July 18th.

Dr. M. L. Crum has moved from Ft. Meade to Arcadia to enter practice.

MALARIA AND THE RAILROADS.

Among diseases, malaria is of great economic importance to the agricultural and industrial development of the South, says the United States Public Health Service at Washington, in a bulletin just issued in which is set forth the results of a malaria survey of the Missouri Pacific Lines south of St. Louis.

The purpose of this survey, conducted during 1922 by the United States Public Health Service in cooperation with the Missouri Pacific Railroad Company and the State Health Officers of Arkansas and Louisiana, was to determine the prevalence of malaria among employees of the railroad, to ascertain the effect of malaria on operating cost and railroad revenues, and to make proper recommendations to the railroad for economical control of the disease.

Bearing upon the importance of malaria as a deterrent to progress, the facts brought out by this survey are significant. It was found that during the last twenty-three years the number of employees given hospital treatment for malaria in the hospitals of the Employees' Hospital Association averaged over 1,000 annually. This number constitutes 35 per cent of all hospital admissions and 45 per cent of all sick cases. For the same period injuries and surgical cases combined totaled only 75 per cent of the malaria admissions. In 1921 over 50 per cent of all medical admissions for one hospital were for malaria. In addition over 4,000 employees received outpatient treatment for malaria each year. The malaria census of four southern divisions shows that only 18 per cent of the malarial employees entered the hospital in 1921, that only 68 per cent even visited a doctor and that 32 per cent of all employees interviewed gave a positive history for 1921.

It was found that employees receiving inpatient treatment for malaria spent on the average nine days in the hospital. The hospital malaria rate is eight times higher among employees working south of St. Louis than among those west of that point. The rate for the entire system (1920-1921) was 11.5 per 1,000, the maximum rate was 72.2 occurring on the Louisiana Division. The highest hospital malaria rate among the groups on the Southern Division was 79.7, found among the bridge and building crews and the extra gangs. The lowest rate was 11.0, that of the shopmen.

With the sub-normal personnel of 1920 the cost of hospital treatment for malarial employees that year was over $25,000. Transportation of malarial employees to and from the hospital and

the pay of employees absent from work with malaria are also tangible charges. Statements from railroad foremen indicate that malaria constitutes enormous charges against the cost of operation by reducing the efficiency of labor, by producing a shortage of labor and by creating a high labor turnover. Employees on malarious divisions are dissatisfied because of frequent sickness in the family and the excessive expenditures for medical attention.

A similar condition exists among the agricultural and industrial enterprises of the territory and the railroad passenger and freight traffic suffers the consequences.

Recommendations for a railroad malaria control program made by the Public Health Service embraces the protection of employees by methods most applicable to their mode of living, including effective screening of bunk cars and section houses, prophylactic quinine for "floating" gangs and section men and anti-mosquito campaign in shop towns and division points, and educational measures. Cooperation with state and local health departments in the inauguration of anti-mosquito campaigns in cities, malarious towns and farming communities on the lines of the Missouri Pacific Railroad is also advocated.

The Public Health Service holds that the railroads because of their common interest in malaria control and close contact at many points with rural population are in a favorable position to assist the local health authorities in conducting educational campaigns for the control of malaria.

This report, Public Health Bulletin No. 135, "Railroad Malaria Surveys," contains much of interest to both railroad employees and operators and should have a wide circulation wherever malaria exists. Incidentally copies of this publication can be obtained free of charge from the Bureau of the United States Public Health Service, Washington, D. C., as long as the limited supply lasts.

CORRESPONDENCE.

Editor Journal of the Florida Medical Association:

In the reports of recoveries from tetanus, it will be noted that almost without exception these are cases in which the incubation stage, or time between the initial injury and first symptoms of tetanus, was more than eight days.

At an annual meeting of the Association of the Seaboard Air Line Railway Surgeons in 1910, I called attention to the Yandell law.

Cases of lockjaw developing before the fourth day after the injury invariably died regardless of all treatments. Cases occurring after eight days occasionally recovered, and cases occurring after eleven days almost always recovered, regardless of any kind of treatment. I did not contend that treatment is useless. It is effective, however, only as modified by the above law, and by quick heroic measures adapted to each particular case, regardless of the old customary timid dosages and methods.

Of the various remedies, choloral in heroic doses for rapid, full sedation, regardless of the textbook dosages, repeated every two, three or four hours by proctoclysis if unable to swallow, has given me the best results. It will not modify the neurotoxines, but it controls the convulsions better than any other means, and by temporizing and preventing the rapid exhaustion of the heart, gives some chance to the patient. The intraspinous, intravenous and hypodermic injections of massive doses of the serum offers some help in modifying the neurotoxines.

Its efficacy as a prophylactic is beyond question. L. S. Oppenheimer, M. D.

SAVING THE BABIES.

Citizens who live in communities apathetic to their infant death rate should consider carefully the results of the cooperative rural health work now being carried on in Green County, Missouri. A report just received by the United States Public Health Service at Washington shows a remarkable reduction in the infant mortality rate in Springfield and Campbell townships since the establishment there of a whole-time county health department.

In 1918 the death rate in these two Missouri townships was 105 per thousand. That is, out of every 1,000 babies born alive, 105 died in that year. Then Green county decided it could no longer afford to continue unmindful of its baby death rate and a health department was organized.

In the following year 1919, the infant death rate in these two townships dropped to 96 per thousand. In 1920 it went to 85, in 1921 to 76, and in 1922 the decline reached 61. In other words, Springfield and Campbell townships reduced their infant mortality rate 42 per cent within the short space of four years.

This forty-two per cent reduction furnishes a striking example of what may be accomplished in infant welfare by carrying out, with economy

and efficiency, a well-balanced general program of health work affecting all age-sex groups in a community with a well-administered health department under the direction of a whole-time health officer.

The example of Missouri in saving its babies should give cause to every citizen of other communities not equipped with health departments or health officers giving their full time to the work. It is time for the thinking men and women who live in such communities to organize; time for them to shake off their indifference and set about earnestly to save the lives of babies born in such communities. A county health department under the direction of a full-time health officer is the first objective. Missouri is showing the way.

COMMENTS OF THE PLEASING KIND.

My copy of THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION in its new form and dress has just been received. I wish to congratulate you upon the very great improvement, and I am sure it will be much appreciated by every member of the Association. * * *

J. C. DICKINSON.

I must write you a line to congratulate you on the greatly improved appearance and make-up of THE JOURNAL. * * *

W. L. HUGHLETT.

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* * * THE FLORIDA JOURNAL has not been coming to my desk, except occasionally, but I have seen it often enough to realize immediately that the July number represents an improvement in appearance and in spirit. I congratulate you and your associates and extend my sincere good wishes for the success of your efforts to improve and build up THE JOURNAL to a place where it will command and hold the interest and support of the entire profession in Florida.

OLIN WEST, *Secretary,*
American Medical Association.

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* * * Let me say that you have improved THE JOURNAL considerably, and I congratulate you on your good work.

STEWART R. ROBERTS.

Have just received the July number of THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION. You have good reasons to be proud of it. Although the little journal was good, this issue is a great improvement. * * *

E. S. VALENTINE.

I congratulate you and your associates in the appearance and quality of the July number of THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION.

R. H. MCGINNIS.

Volume X, No. 1, of THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION has just been received. In make-up, contents, etc., it is a model medical publication, and the medical profession in Florida should be proud of their JOURNAL. The typographical appearance is excellent. You are to be congratulated on having a printing house that gives its output the quality stamp. * * *

E. W. MATTSON, *Manager,*
Cooperative Medical Advertising Bureau.

I am just writing to compliment you upon the improved appearance of your splendid JOURNAL. The new cover adds a great deal to the attractiveness of the JOURNAL. You are certainly using a splendid paper for your inside and with this kind of paper the printer will be able to give you a splendid job—he is giving you a splendid job.

C. P. LORANZ, *Secretary-Manager,*
Southern Medical Association.

The July number of your medical JOURNAL has just been received and we want to congratulate you on the appearance of the new JOURNAL. Certainly it is a more practical size and we can notice already a distinct difference in the number and tone of the general papers. * * *

EDGAR B. CARTER,
Director of Biological Laboratory,
Swan-Myers Company.

I was pleased to see the great improvement in THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION and I want to compliment you upon getting out one of the best of the State Journals.

While at the San Francisco Convention of the A. M. A., Mr. Mattson, of the Cooperative Medical Advertising Bureau, told me that you would make some improvements in your publication, but I did not anticipate the wonderful improvement which you have made.

B. L. MALTBIE.

MEDICAL WOMEN'S NATIONAL ASSOCIATION.

The ninth annual meeting of the Medical Women's National Association was held in San Francisco, June 25th and 26th, in conjunction with the American Medical Association meetings, Dr. Grace N. Kimball, president; Dr. Kate Campbell Mead, president-elect. At the open session, Monday evening, Dr. Ray Lyman Wilbur, president-elect of the American Medical Association, delivered an eloquent and inspiring address on the Power of the Minority.

At the open session, Tuesday morning, a five-year program was presented by the executive committee and council, and was adopted. This program is under five heads:

1. Continuation of the work of the Committee on Medical Service, American Women's Hospitals; Dr. Esther P. Lovejoy, chairman, 637 Madison avenue, New York.

2. Federation of American Women's Organizations with the Medical Women's National Association, under Organization Committee; Gertrude A. Walker, chairman, Whitefield, N. H.

3. Public Health, co-operating with American Medical Association Council on Health and Public Instruction, Hygiene, and Women's Foundation for Health, etc.; Dr. Elizabeth B. Thelberg, chairman, Vassar College, Poughkeepsie, N. Y.

4. Committee for Medical Opportunities for Women, Dr. Sue Radcliff, chairman, 21 Morris street, Yonkers, N. Y. Internships for young graduate-members of the Medical Women's National Association in hospitals conducted by the American Women's Hospitals; in missionary hospitals and in hospitals in U. S. A., as well as opportunities for private practice, service on boards of health, government appointments, etc.

5. Publicity for the Medical Women's National Association through *The Bulletin* and an editorial staff, consisting of the president and executive committee, president-elect and an editor-in-chief. Dr. Grace N. Kimball, Poughkeepsie, N. Y., was appointed editor-in-chief.

The Bulletin, which was published quarterly last year, will be continued as the official organ of the association and sent to all members of the Medical Women's National Association.

An amendment to the constitution was passed, providing for group membership. This was in response to proposals for federation made last year by certain societies of medical women.

Under the group membership amendment, organizations of women whose basis of membership conforms to that of the Medical Women's National Association, viz, membership in the American Medical Association, may join the National as group members: Kansas State Medical Women's Society, New York State Medical Women's Society, Connecticut State Medical Women's Society, Portland (Oregon) State Medical Women's Club, affiliated through their representatives at the San Francisco meeting.

The Nebraska, Los Angeles and New England Medical Women's societies signified their desire to take action regarding affiliation.

The Medical Women's National Association had a most interesting exhibit. Booth E of the American Medical Association, scientific and educational exhibits, showing the work of the American Women's Hospitals in Greece and Serbia. Twenty hospitals and a large number of dispensaries are being run by this committee of the Medical Women's National Association in Greece alone, under the directorship of Dr. Mabel Elliott, New York headquarters, 637 Madison avenue, New York; Dr. Esther P. Lovejoy, executive secretary.

Four periods on the American Medical Association Moving Picture Theater were assigned to the National—a film of work in Greece, Crete and the quarantine work on Macronessi Islands, shown by Dr. Esther Lovejoy; and slides of hospital and surgical work in Serbia, under Dr. Etta Gray.

Dr. Kate Campbell Mead, of Middleton, Conn., was installed as president. Dr. Katherine C. Manion, of Port Huron, Mich., was chosen president-elect.

The following officers and councilors were elected:

First Vice-President—Dr. Martha Welpton, San Diego.

Second Vice-President—Dr. Marjory J. Potter, San Diego.

Third Vice-President—Dr. Florence W. Duckering, Boston, Mass.

Secretary—Dr. Jessie W. Fisher, Middleton, Conn.

Treasurer—Dr. L. Rosa H. Gantt, Spartanburg, S. C.

The 1924 annual meeting of the Medical Women's National Association will be held in Chicago, Ill.

NEW AND NON-OFFICIAL REMEDIES.

PROTEIN EXTRACTS DIAGNOSTIC-P. D. & CO.—Protein extracts in the form of paste, the base of which is a mixture of glycerin and powdered boric acid. One part represents one part of original material.

Actions and Uses.—See Pollen and Epidermal Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, p. 234.

Dosage.—See Pollen and Epidermal Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, p. 234.

Protein Extracts Diagnostic-P. D. & Co. are marketed in collapsible tubes containing approximately 1.5 Gm., sufficient for fifty tests.

Manufactured by Parke, Davis & Co., Detroit. No U. S. patent or trademark.

Almond Protein Extract Diagnostic-P. D. & Co.*; Apple Protein Extract Diagnostic-P. D. & Co.*; Asparagus Protein Extract Diagnostic-P. D. & Co.*; Banana Protein Extract Diagnostic-P. D. & Co.*; Barley Protein Extract Diagnostic-P. D. & Co.*; Bean (Lima) Protein Extract Diagnostic-P. D. & Co.*; Bean (Navy) Protein Extract Diagnostic-P. D. & Co.*; Bean (String) Protein Extract Diagnostic-P. D. & Co.*; Beef Protein Extract Diagnostic-P. D. & Co.*; Beef Serum Protein Extract Diagnostic-P. D. & Co.†; Beet Protein Extract Diagnostic-P. D. & Co.*; Blackberry Protein Extract Diagnostic-P. D. & Co.*; Black Pepper Protein Extract Diagnostic-P. D. & Co.*; Black Walnut Protein Extract Diagnostic-P. D. & Co.*; Bluefish Protein Extract Diagnostic-P. D. & Co.*; Brazil Nut Protein Extract Diagnostic-P. D. & Co.*; Buckwheat Protein Extract Diagnostic-P. D. & Co.*; Butternut Protein Extract Diagnostic-P. D. & Co.*; Cabbage Protein Extract Diagnostic-P. D. & Co.*; Cantaloupe Protein Extract Diagnostic-P. D. & Co.*; Carrot Protein Extract Diagnostic-P. D. & Co.*; Cat Hair Protein Extract Diagnostic-P. D. & Co.§; Cattle Hair Protein Extract Diagnostic-P. D. & Co.§; Celery Protein Extract Diagnostic-P. D. & Co.*; Cheese Protein Extract Diagnostic-P. D. & Co.*; Cherry Protein Extract Diagnostic-P. D. & Co.*; Chestnut Protein Extract Diagnostic-P. D. & Co.*; Chicken Protein Extract Diagnostic-P. D. & Co.*; Chicken Feathers Protein Extract Diagnostic-P. D. & Co.§; Clam Protein Extract Diagnostic-P. D. & Co.*; Cocoa Protein Extract Diagnostic-P. D. & Co.*; Codfish Protein Extract Diagnostic-P. D. & Co.*; Coffee Protein Extract Diagnostic-P. D. & Co.*; Corn Protein Extract Diagnostic-P. D. & Co.*; Crab Protein Extract Diagnostic-P. D. & Co.*; Cucumber Protein Extract Diagnostic-P. D. & Co.*; Dog Hair Protein Extract Diagnostic-P. D. & Co.§; Duck Protein Extract Diagnostic-P. D. & Co.*; Duck Feathers Protein Extract Diagnostic-P. D. & Co.§; Egg (all proteins) Protein Extract Diagnostic-P. D. & Co.*; Egg White Protein Extract Diagnostic-P. D. & Co.*; Egg Yolk Protein Extract Diagnostic-P. D. & Co.*; Eggplant Protein Extract Diagnostic-P. D. & Co.*; English Walnut Protein Extract Diagnostic-P. D. & Co.*; Fig Protein Extract Diagnostic-P. D. & Co.*; Garlic Protein Extract Diagnostic-P. D. & Co.*; Ginger Protein Extract Diagnostic-P. D. & Co.*; Goose Protein Extract Diagnostic-P. D. & Co.*; Goose Feathers Protein Diagnostic-P. D. & Co.§; Grapefruit Protein Extract Diagnostic-P. D. & Co.*; Guinea-hen Protein Extract Diagnostic-P. D. & Co.*; Guinea Pig Hair Protein Extract Diagnostic-P. D. & Co.§; Haddock Protein Extract Diagnostic-P. D. & Co.*; Halibut Protein Extract Diagnostic-P. D. & Co.*; Herring Protein Extract Diagnostic-P. D. & Co.*; Hickory Nut Protein Extract Diagnostic-P. D. & Co.*; Horse Hair Protein Extract Diagnostic-P. D. & Co.§; Horse Serum Protein Extract Diagnostic-P. D. & Co.†; Juniper Pollen Protein Extract Diagnostic-P. D. & Co.‡; Lamb Protein Extract Diagnostic-P. D. & Co.*; Lemon Protein Extract Diagnostic-P. D. & Co.*; Lettuce Protein Extract Diagnostic-P. D. & Co.*

Products marked * are prepared by the following method: The material is finely ground and mixed with four times its weight of sterile water containing 0.1 per cent of a phenolic preparation having a phenol coefficient of from 12 to 24 and shaken in a mechanical shaker for 24 hours. The mixture is then strained and filtered, and to the filtrate glycerin is added in the proportion of 2 Gm. for every 5 Gm. of original material and the water evaporated in a vacuum at 37 C. The glycerin extract is then mixed with powdered boric acid in the proportion of 2 parts of glycerin extract to 3 parts of boric acid. The finished amount of paste is equal to the weight of material taken.

Products marked † are prepared by the following method: Serum is mixed with glycerin in the proportion of 5 parts of serum to 2 parts of glycerin. The water in the mixture is evaporated in a vacuum at 37 C. The glycerin extract is then mixed with powdered boric acid in the proportion of 2 parts of glycerin extract to 3 parts of boric acid. The final amount of paste is the same as the weight of serum originally taken.

Products marked ‡ are prepared by the following method: Dry pollen is extracted with physiologic solution of sodium chloride containing 0.05 per cent of a phenolic preparation having a phenol coefficient of 12 to 24 in the proportion of 1 Gm. pollen to 5 Cc. of menstruum, the mixture being ground in a ball mill for several days with sterile sand. After removal from the mill, the mixture is diluted with three times its volume of the solvent and shaken in a mechanical shaker for twenty-four hours. The mixture is filtered and gylcerin added in the proportion of 2 Gm. for every 5 Gm. of pollen. Water is evaporated in a vacuum at 37 C. The extract is mixed with powdered boric acid in the proportion of 2 parts glycerin extract to 3 parts of boric acid. The final weight of the mixture is equal to the weight of the pollen taken.

Products marked § are prepared by the following method: The material (hair or feathers) is finely ground and mixed in the proportion of 125 Gm. and 2,000 Cc. 14 per cent alcohol and agitated in a mechanical shaker for twenty-four hours. The mixture is then strained and filtered and glycerin added to the filtrate in the proportion of 2 Gm. for every 5 Gm. of original material and then the water evaporated in a vacuum at 37 C. The glycerin extract is then mixed with powdered boric acid in the proportion of two parts of glycerin extract with three parts of boric acid. The finished amount of preparation is equal to the weight of original material taken.

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